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Molecular Phylogenetic Studies in the Linaceae and *Linum*, with Implications for their Systematics and Historical Biogeography

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Molecular Phylogenetic Studies in the Linaceae and *Linum*, with Implications for their Systematics and Historical Biogeography

by

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Molecular Phylogenetic Studies in the Linaceae and *Linum*, with Implications for their Systematics and Historical Biogeography

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Best-known as the family of the cultivated flax, *Linum usitatissimum* L., the Linaceae is a small but ecologically diverse family of flowering plants, with approximately 250 species distributed throughout the temperate and tropical latitudes of the world. This work is an investigation of the systematics and biogeography of the family and a portion of its largest genus, *Linum*, using molecular phylogenetic methods. I collected DNA sequences of *rbcL* and *matK* genes from 51 species of Linaceae, representing all 14 genera, and combined them with data from 24 other families of the order Malpighiales in phylogenetic analyses. Results strongly support the monophyly of Linaceae and subfamily Linoideae in their current circumscriptions, but subfamily Hugonioideae is poorly supported. Molecular dating analysis suggests that the temperate Linoideae diversified in the Eocene or Oligocene, while tropical Hugonioideae diversified later, during the Miocene, perhaps ruling out Gondwanan vicariance as an explanation for their Pantropical distribution. *Hugonia* and *Linum*, the largest genera in their respective subfamilies, are each found have multiple segregate genera nested within them, indicating potential need for taxonomic revision of each subfamily. In Linoideae, I further investigate the phylogeny of a lineage that includes the yellow-flowered *Linum* sections *Cathartolinum*, *Linopsis*, and *Syllinum*, and the segregate genera *Cliococca*, *Hesperolinon*, *Radiola*, and *Sclerolinon*, to provide a framework in which to assess character evolution, classification, and biogeography. With data from four chloroplast markers (*matK*, *ndhF*, *trnK* 3' intron, *trnL-F* region) and the nuclear ITS, and extensive sampling from *Linum* section *Linopsis* from Eurasia, Africa, and the Americas, *Hesperolinon* and *Sclerolinon* are shown to be related to a lineage of Central American linums including *L. mexicanum* Kunth and *L. guatemalense* Benth., while *Cliococca* is affiliated with South American *Linum*. The phylogeny supportes previous hypotheses of the evolution of some taxonomically important characters, and several well-supported lineages are identified which correspond to previously proposed taxonomic groupings. Results also provide evidence for a single trans-Atlantic disjunction and independent Old and New World colonizations of the southern hemisphere in yellow-flowered *Linum*, occurring during the Miocene.

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Chapter 1: Introduction

The Linaceae is a small (ca. 250 species) but nearly cosmopolitan family of plants made famous by the cultivated flax, *Linum usitatissimum* L., which has been a commercially important source of fibers and seed oils since antiquity. Other flaxes, such as *L. perenne* L. and *L. grandiflorum* Desf., are cultivated as ornamentals, and a few (notably *L. album* Kotschy ex Boiss. and other species of *Linum* section *Syllinum* Griseb.) have been found to be sources of medicinally important lignans. In addition to *Linum* L., the family includes 13 additional genera, ranging from diminutive annuals of California's chaparral (*Hesperolinon* (Gray) Small, Sharsmith 1961) to canopy-forming trees in the humid, lowland forests of the Amazon basin (*Roucheria* Planch. and *Hebepetalum* Benth., Jardim 1999). They have been classified into two subfamilies (Dressler et al. in press): Linoideae (which includes *Linum* and the other annual and perennial genera of mostly temperate distribution) and Hugonioideae (tropical trees, shrubs, and lianas). In addition to their ecological and taxonomic diversity, the family displays a range of variation in several characters of biological and evolutionary interest, such as breeding system (both subfamilies include homostylous and heterostylous species), chromosome complement (with haploid numbers ranging from n=6 to n=36), pollen morphology (tricolpate to multiaperaturate), floral pigmentation, and edaphic endemism. The Linaceae and *Linum* thus afford the opportunity to examine a number of evolutionary and biogeographic problems. In spite of the economic importance of the flaxes and a history of detailed biosystematic study in the family, no previous attempt has been made to address the biogeography or evolution of Linaceae or *Linum* in a phylogenetic framework. Large-scale phylogenetic studies in Angiosperms (Savolainen 2000, Davis et al. 2005) have succeeded in placing Linaceae the order Malpighiales, but none have included broad sampling from the family.

The work presented here represents some preliminary contributions toward understanding evolutionary relationships in the Linaceae and *Linum*, using molecular phylogenetic analyses. In collaboration with Miriam Repplinger and Joachim Kadereit (both of Johannes Gutenberg University, Mainz, Germany), this led to an initial publication on the phylogeny of Linaceae subfamily Linoideae, with particular emphasis on the systematics, biogeography, and evolution of heterostyly in the five generally-recognized sections of *Linum* (McDill et. al. 2009). While several circumscriptions of *Linum* and its sections have been published in the last 150 years, the relationships among the sections and species of *Linum* and the other genera of Linoideae had not previously been assessed. The phylogeny of the subfamily was reconstructed using sequence data I collected from four chloroplast regions (*rbcL*, *trnK* 3' intron, *trnL-F* intron and intergenic spacer, and a small portion of the *ndhF* gene), in concert with additional *rbcL* and nuclear ITS sequences provided by Miriam Repplinger, with sampling representing all of the genera of Linoideae and the sections of *Linum*. Analyses revealed that *Linum* is divided into two major lineages, designated the Blue-Flowered and Yellow-Flowered clades. The two largest sections of *Linum*, sects. *Linum* and *Linopsis*, were found to be paraphyletic, with the remaining sections nested within them. *Linum* itself was also shown to be non-monophyletic, the segregate genera *Cliococca, Hesperolinon, Radiola,* and *Sclerolinon* being interspersed among the yellow-flowered species of *Linum*. Results from that study also implied that Eurasia was the ancestral area in which the lineages of *Linum* initially diversified.

Another finding of those early analyses was that the tropical subfamily, Hugonioideae, was suggested to be paraphyletic, but this conclusion was tempered by the fact that very few Hugonioid taxa were sampled, with only three of the subfamily's six genera represented with data from a single marker, *rbcL*. This led to the analyses presented here in Chapter 2, an examination of the relationship between Linaceae subfamilies Linoideae and Hugonioideae, with data from two chloroplast markers, *rbcL* and *matK*, and sampling from 51 species representing all 14 genera of the family. These data were combined with published, publicly available sequences from representatives of 24 other families of Malpighiales, so that the monophyly of Linaceae could be assessed. Results of phylogenetic analyses using maximum parsimony, maximum likelihood, and Bayesian methodologies indicate that the two subfamilies may be monophyletic sister lineages, although Hugonioid monophyly might still be in question.

Chapter three revisits the phylogeny of *Linum* with an emphasis on *Linum* section *Linopsis*. Section *Linopsis* is the largest and most widespread of linum's five traditional sections — while the other four sections of *Linum* are essentially confined to Eurasia, *Linopsis* has diversified extensively in Africa and the Americas. *Linopsis* is also the most thoroughly-studied section taxonomically, thanks to the work of C.M. Rogers and his student R. Mildner, who produced revisionary studies of African and American flaxes

(Rogers 1963, 1981a, 1981b, 1984; Rogers and Mildner 1976) as well as a systematic classification for the entire section (Rogers 1982). The previous analyses published by McDill et al. (2009) indicated that the members of section *Linopsis* were part of a loosely-characterized "yellow-flowered" lineage that was sister to *Radiola linoides* Roth, and included *Linum* sections *Cathartolinum* Griseb. and *Syllinum* as well as the segregate genera *Cliococca* Bab., *Hesperolinon*, and *Sclerolinon* C.M. Rogers. The phylogeny of this lineage is reconstructed using maximum likelihood and Bayesian methods, with data from four chloroplast markers and the nuclear ITS region and extensive taxon sampling from *Linum* section *Linopsis* from Europe, Africa, and the Americas. The goals of this study were to clarify the relationships of the segregate genera, assess the classification and character evolution hypotheses that have been proposed for section Linopsis, and provide a phylogenetic framework for the biogeographic analyses presented in Chapter 5.

In Chapter 4, the phylogeny of the yellow-flowered clade is used to identify the intercontinental disjunctions that have taken place during their diversification, and to test different historical biogeographic hypotheses for the origins of these disjunctions based on their phylogenetic predictions and divergence time requirements. Because the data and analyses presented in Chapter 3 could not conclusively resolve the relationships among the species groups of South American, North American, and South African *Linum* (including the segregate genera), a parametric bootstrapping method was used to test different hypotheses of relationships aimed at determining the number of trans-Atlantic and trans-tropical disjunctions necessary to explain the current distribution of this lineage. A Bayesian method of divergence time estimation, employing calibration points based on previous estimates for the age of the family and a *Linum* pollen fossil from the late Eocene, is used to determine whether the timing of the apparent disjunctions is compatible with historical biogeographic scenarios involving vicariance, land bridge migration, or recent long-distance dispersals.

The following three chapters of this dissertation will ultimately be published as independent papers in scientific journals. Each has been formatted with its own abstract, introduction, materials and methods, results, tables, figures, and discussion. A single list of references has been assembled for all of the chapters combined.

Chapter 2: On the Relationship between Linaceae Subfamilies Linoideae and Hugonioideae

ABSTRACT

The relationship between Linaceae subfamilies Linoideae (temperate) and Hugonioideae (tropical) are examined with data from two chloroplast regions and sampling representing all 14 commonly-recognized genera of Linaceae as well as representatives of 24 families of the order Malpighiales. The Linaceae and both of its subfamilies are found to be monophyletic, although the monophyly of Hugonioideae is not well supported. The families of Cronquist's order Linales – Ctenolophonaceae, Erythroxylaceae, Humiriaceae, and Ixonanthaceae – are not found to share recent common ancestry with Linaceae, though relationships of families are not well resolved in our analyses and no definitive sister-group to Linaceae can be identified. Both *Hugonia* and *Linum*, the largest genera of their respective subfamilies, are found to be non-monophyletic, each with several segregate genera nested within them. Average divergence time estimates indicate that the extant Linaceae began to diversify in the Paleocene, with the majority of species originating in the Miocene or later.

INTRODUCTION

The Linaceae are a relatively small but subcosmopolitan family of flowering plants. Including the cultivated flax (*Linum usitatissimum* L., the source of linen fiber and linseed oil), the family comprises approximately 270 species, divided into 14 genera in two subfamilies: the Linoideae and the Hugonioideae (Dressler et al., in press). As a whole, the Linaceae is only weakly diagnosable by a suite of morphological characters, none unique among angiosperms: simple, entire leaves that vary among species in their arrangement but are most commonly alternate, flowers that are hermaphroditic, actinomorphic, and pentamerous (four-merous in two species), with caducous petals often marked by pigmented lines or bands, five or ten stamens that are fused basally into a cup or tube that surrounds the ovary, and a syncarpous superior ovary of five carpels (but the number of carpels is reduced in many taxa).

With approximately 210 species, Linoideae is the larger subfamily, and encompasses the type genus, *Linum* L., and seven other genera (Table 2.1). Their distributions are primarily temperate, as shown in Fig. 2.1, although the ranges of some species do extend into, or are entirely within, tropical latitudes. Those species of Linoideae that inhabit the tropics tend to occur in relatively open, arid habitats and highlands, not the canopied, lowland mesic forests more typically considered as tropical habitats. Linoideae are herbaceous annuals or shrubby perennials, and are differentiated from Hugonioideae by the number of fertile stamens (five in Linoideae, alternating with structures interpreted as staminodia in some species) and by their dehiscent, capsular fruits. In the first detailed global treatments of Linaceae, Planchon (1847, 1848) recognized four of the genera now placed in subfamily Linoideae: *Anisadenia* Wall., *Linum*, *Radiola* Hill., and *Reinwardtia* Dumort. *Tirpitzia* Hallier f. was segrated from *Reinwadtia* by Hallier (1921) to accommodate a species with long corolla tubes not seen in other *Reinwardtia*. The remaining three genera were segregated from *Linum* in recognition of their morphological distinctiveness: *Cliococca* Bab. (Babington 1842, Rogers and Mildner 1971), with its unique, closely-packed, needle-like leaves and indehiscent fruit, *Hesperolinon* (A. Gray) Small with its reduction in the number of carpels from from five to three or two (Small 1907, Sharsmith 1961), and *Sclerolinon* C.M. Rogers (Rogers 1966) with its bicarpellate fruits that break apart into four indehiscent nutlets (as opposed to the dehiscent capsules found in other Linoideae).

The Hugonioideae, with approximately 57 species in six genera, are mostly confined to the tropics (Fig 2.2). They are trees, shrubs, and lianas that tend to inhabit moist lowland forests, either as part of the understory or the canopy (Van Hooren and Nooteboom 1984, Jardim 1999). Several species occur in arid habitats, such as *Hugonia orientalis* Engl., a species of the Sandveld vegetation in southern Africa (Schmidt et al. 2007). In addition to their growth habit and tropical distribution, Hugonioideae are characterized as having ten fertile stamens (in two ranks of different height). The fruits are fleshy and are often described as drupes (pyrenes in *Durandea* and some *Hugonia*), although they are derived from multiple carpels and usually contain more than one seed (van Hooren and Nooteboom 1984, Jardim 1999).

The generic taxonomy of Hugonioideae proceeded with the early recognition of *Hugonia*, followed by removal of variant species to small, segregate genera. *Hugonia* L. was known to Linnaeus as an Old World genus of trees and woody vines. Planchon recognized *Roucheria* Planch. based on collections from South America (two species, *R. humiriifolia* Planch. and *R. calophylla* Planch.) and India (*R. griffithiana* Planch.) in which the number of carpels was reduced from that observed in *Hugonia* (Planchon

1848). At the same time, Planchon segregated the genus *Durandea* Planch., which has pyrenaceous fruits, smaller flowers, and lacks the large, pinnatifid stipules found in *Hugonia* (Planchon 1848, Winkler 1931, Jardim 1999). *Durandea* was later treated as a subgenus of *Hugonia* (Baillon 1878, Van Hooren and Nooteboom 1984). In 1862, Planchon's *Roucheria humiriifolia* served as the basis for another new genus, *Hebepetalum* Benth., due in part to its distinctive leaf venation (Bentham and Hooker 1862) and internal corolla pubescence; subsequent shuffling of taxa between *Hebepetalum* and *Roucheria*, and the description of new species of each, are reviewed in detail by Jardim (1999). Hallier segregated *Philbornea* Hallier f. from *Durandea*, based in part on its inflorescence structure and reduced number of carpels from five to three or four (Hallier 1912). Hallier later transferred *Roucheria griffithiana* to another new genus, *Indorouchera* Hallier f., noting that it is a tendrillate vine of the Nicobar islands and Malaysia, whereas *Roucheria* species are South American trees that lack tendrils (Hallier 1921, Jardim 1999).

Several additional woody tropical genera have been treated as members of Linaceae due to perceived similarities to members of Hugonioideae. Table 2.2 summarizes four historical classifications schemes for Linaceae along with the current classification (Dressler et al. in press). The expanded circumscriptions of Bentham and Hooker (1862), Baillon (1878), and Winkler (1931) included genera alternatively placed in the Erythroxylaceae, Ctenolophonaceae, Ixonanthaceae, and Humiriaceae. Later treatments usually excluded these groups from Linaceae, based on studies of floral morphology and wood and leaf anatomy (Van Hooren and Nooteboom 1984), but still usually considered them close relatives to Linaceae. Cronquist recognized the perceived similarities of these families to Linaceae by classifying them all in his order Linales (Cronquist 1988).

Investigations of angiosperm phylogeny have provided some additional evidence for the exclusion of many tropical components from Linaceae and have clarified the ordinal placement of the family, in addition to supporting the close relationship of Hugonioideae and Linoideae. All of the families of Cronquist's Linales are now placed in the large order Malpighiales (APG II 2003). Analyses of sequence variation in the chloroplast genes *rbc*L and *atp*B, and the nuclear ribosomal gene 18S, found that the Humiriaceae (represented by *Humiria* and *Vantanea*), Ixonanthaceae (*Ochthocosmus* and *Ixonanthes*), and Erythroxylaceae (*Erythroxylon* and *Nectaropetalum*) were dispersed throughout the Malpighiales, and do not appear to share recent common ancestry with Linaceae(Savolainen et al. 2000). A more strictly defined Linaceae, represented by one sample each from *Hugonia*, *Reinwardtia*, and *Linum*, was shown to be monophyletic in that study. The closest relative of Linaceae remains unknown; clades that have appeared as sister groups to Linaceae in various analyses include Violaceae + Passifloraceae + Turneraceae (Savolainen et al. 2000), Picrodendraceae (Chase et al. 2002), Balanopaceae + Trigoniaceae + Dichapetalaceae + Euphroniaceae + Chrysobalanaceae (Davis and Chase 2004), or Irvingiaceae (Davis et al. 2005). Sampling of Linaceae in these studies has been very limited, with one *Reinwardtia* and one or two species of *Linum* representing Linoideae, and one species of either *Hugonia* or *Durandea* representing Hugonioideae. The sister relationship of Linoideae and Hugonioideae has been found consistently in phylogenetic studies that included members of both subfamilies. However, many of the genera of Linaceae (whether currently accepted or historically supposed) have not been sampled together in molecular phylogenetic analyses, leaving our understanding of the membership of Linaceae and the relationships among its genera incomplete.

The Hugonioideae (or Hugoniaceae) and Linoideae (Linaceae s.s.) could be considered an example of an angiosperm "family pair" in which one member is mainly tropical and the other is temperate to cosmopolitan in distribution (Judd et al. 1994). In several such family pairs, such as the Apocynaceae/Asclepiadaceae, it has been shown that the first, mainly tropical member, is paraphyletic, with the second, more temperate family derived from within it (Potgeiter and Albert 2001). In other pairs, such as the Clusiaceae/Hypericaceae and Araliaceae/Apiaceae, more complex patterns of relationship have been revealed, implying that the temperate and tropical groups are each monophyletic yet derived from a common ancestry (Gustafsson et al. 2002, Plunkett et al. 1997). Results from phylogenetic studies of such family pairs can have important consequences for family circumscriptions and recognition (if monophyly is considered an necessary qualification for family recognition). Though Hugoniaceae is occasionally recognized as a distinct family, and numerous morphological and anatomical differences exist that distinguish it, its relationship to Linaceae s.s. (= Linaceae subf. Linoideae) has not been specifically investigated in any phylogenetic analyses.

A preliminary view of Linaceae phylogeny with *rbcL* sequences representing all genera of Linoideae plus several Hugonioid taxa (three species of *Hugonia*, one

Durandea, and two *Roucheria*) was presented by McDill et al. (2009). An interesting finding of their analysis was that the Hugonioideae appeared paraphyletic, with a well-supported, monophyletic Linoideae nested within it. This result could have important implications for the circumscription of Linaceae, supporting the idea that Hugoniaceae should not be recognized as a distinct family. However, it could also represent an anomalous result stemming from lack of phylogenetic signal, inadequate taxon sampling from Hugonioideae, or inadequate outgroup selection leading to mis-rooting of the Linoideae/Hugonioideae clade. McDill et al. (2009) went on to provide a detailed account of relationships in Linoideae, with additional data and taxon sampling from a broad sample of that subfamily, but generic relationships in Hugonioideae, and its disposition relative to Linoideae, were not explored further.

In the present study we revisit the question of the relationship between Linoideae and Hugonioideae. Taxonomic sampling from Hugonioideae has been increased to represent all of the genera currently placed in the subfamily, and a somewhat larger fraction of its largest genus, *Hugonia*. To complement the *rbcL* data, a parallel matrix of sequences of the chloroplast gene *matK* has been added. Outgroup taxa were chosen to represent most of the other families of Malpighiales (as sampled by Tokuoka and Tobe 2006), including the Ctenolophonaceae, Erythroxylaceae, Humiriaceae, and Ixonanthaceae, which have been hypothesized to be closely related to (or members of) the Linaceae in the past (i.e., as members of Winkler's 1931 expanded Linaceae, or Cronquist's order Linales). The questions this study seeks to address are summarized as follows:

1. Is the Linaceae monophyletic in its current circumscription (that of Dressler et al., in press)?
2. Do any other members of Cronquist's order Linales or the "expanded" Linaceae of Bentham and Hooker, Baillon, or Winkler share recent common ancestry with Linaceae, to the exclusion of other members of Malpighiales?
3. Is the Hugonioideae monophyletic and potentially recognizable as a family distinct from Linaceae?
4. What are the generic relationships in the Hugonioideae?

MATERIALS AND METHODS

Taxon and Marker Selection — Fifty-one species were chosen to represent the 14 currently recognized genera of Linaceae. Each genus is represented by multiple species when possible, and the largest genera (*Linum* and *Hugonia*) were sampled to approximate the breadth of their taxonomic diversity and geographic range. Sequences of the chloroplast genes *matK* and *rbcL* were obtained from these selected taxa (some *rbc*L having been sequenced previously by McDill et al. [2009]), and combined with sequences representing 24 families of the order Malpighiales, available from GenBank. These markers were selected due to their general usefulness in elucidating angiosperm phylogeny (Savolainen et al. 2000, Hilu et al. 2003) and for the availability of sequences from a broad sample of taxa from the Malpighiales. Outgroups for tree rooting purposes were selected from the six orders that, along with Malpighiales, comprise the Eurosid I lineage (APG 2003). Taxon sampling from Malpighiales and outgroup selection represent a subset of taxa sampled by Tokuoka and Tobe (2006). Table 2.3 provides a complete list of taxa sampled, including GenBank accession numbers for new and previously-published sequences.

DNA Extraction, PCR, and Sequencing—DNA was extracted from fresh leaves or herbarium specimens using a modified Doyle and Doyle CTAB protocol (Loockerman and Jansen 1996). Two to six microliters of a 1:10 dilution (in TE) of each extract were used as template in PCR reactions. The primers used for amplification and sequencing of *rbcL* and *matK* that are new to this study are provided in Table 2.4, along with previously published primer sequences. PCR was executed in 25μL reaction volumes, the master mix including (per reaction): 2.5μL 10X Triton-X reaction buffer, 200 μM dNTPs, 10pM each primer, 2-3 μL 25 mM $MgCl_2$, and *Taq* polymerase. Addition of BSA (3μL of 3.3% w/v BSA, Savolainen et al. 2000) to the reaction mix enhanced amplification from some samples. The thermal cycling program for amplification consisted of the following steps: initial denaturation at 95°C for 4 min, followed by 34 cycles with denaturation at 95°C for 30 sec, annealing at 50°C for 30 sec, and extension at 72°C for 30 sec. Cycles were followed by a final extension step at 72°C for 6 min. PCR products were verified by electrophoresis in 1.5% agarose gels, and cleaned using either QiaQuick columns (Qiagen Inc.) or Centri-Sep columns packed with G-50 Sephadex (Princeton Separation, Inc.), according to the manufacturer’s instructions, or using the EXO-SAP protocol based on Werle et al. (1994).

Amplified fragments were sequenced with forward and reverse dye terminator reactions using the original amplification primers or internal primers as necessary for each marker and BigDye 3.1 chemistry (Applied Biosystems). Sequencing was done at The University of Texas at Austin on either an MJ Research BaseStation sequencer (MJ Research, Waltham, Massachussetts, discontinued) operated by the author, or an ABI 3730 DNA Analyzer at the Institute for Cell and Molecular Biology Core Facility.

All forward and reverse sequence reads were assembled and edited in Sequencher 4.1.2 or 4.5 (GeneCodes Corp. 2005). Alignment of *rbcL* was achieved manually in MacClade 4.08 (Maddison and Maddison 2005), while *matK* sequences were aligned using the MAFFT tool (Katoh et al. 2002) to align sequences using their amino acid translation, followed by adjustment in MacClade. When data from either marker could not be obtained from a specific taxon, that taxon was included in the combined analysis with the missing sequence coded as missing data.

Phylogenetic Analyses — Analyses using maximum parsimony (MP) as the optimality criterion were conducted with PAUP* 4.0b10 (Swofford 2002). The heuristic search algorithm was engaged with 500 random addition replicates and tree bisection-reconnection (TBR) branch-swapping, saving and swapping to completion on all minimal trees found. Bootstrap analyses under the MP criterion used 500 bootstrap replicates, each with two random taxon addition replicates, and TBR swapping to completion on 10,000 minimal trees found.

Analyses of each dataset using maximum likelihood (ML) were conducted with GARLI v. 0.96b (Zwickl 2006) and with RAxML 7.0.4 (Stamatakis 2006, implemented on the WWW at the CIPRES Portal 2.0, www.phylo.org/portal2). GARLI was used to analyze *rbcL* and *matK* independently, while RAxML was used for analysis of the combined data matrix. RAxML allows the estimation of independent substitution models for each data partition rather than estimating a single set of parameters to cover the entire combined matrix. Bootstrap support values for the independent ML analyses of each dataset are determined from 500 GARLI bootstrap replicates. For the combined matrix, 500 rapid bootstrap heuristics replicates from RAxML were executed.

Bayesian analyses were performed on the individual and combined data matrices using MrBayes v.3.1.2 (Huelsenbeck and Ronquist 2001). Models of nucleotide substitution were determined for the *rbcL* and *matK* matrices using the Akaike Information Criteria (AIC) implemented in Modeltest 3.7 (Posada and Crandall 1998). The appropriate form of substitution model (but not the specific estimated model paramater values themselves) was then applied for each data partition in the individual and combined analyses. Prior probability distributions on all parameters were kept at default values, and all model parameters except for tree topology and branch lengths were unlinked between partitions. Two independent analyses were run simultaneously, with the built-in convergence diagnostic (average standard deviation of split frequencies) assuming a relative burn-in of 25%. Analyses were run for a minimum of 4 million MCMC generations (sampling rate = 0.01), at which point they were stopped if the convergence diagnostic had dropped below 0.01. Each Bayesian analysis was repeated to confirm that clade posterior probabilities were stable and repeatable.

Divergence Time Estimates — For divergence time estimation, a reduced matrix was utilized that included only the members of Linaceae and Irvingiaceae (*Irvingia malayana*), which was found to be the family most recently diverged from Linaceae in the analyses of Davis et al. (2005). Divergence times were estimated using BEAST 1.4.8 (Drummond and Rambaut 2007) in two separate analyses using the maximum (105 mya) and minimum (94.5 mya) optimal divergence times estimated by Davis et al. (2005) as priors for the age of the root node (the most recent common ancestor of Linaceae and Irvingiaceae). For each analysis, the optimal Linaceae-Irvingiaceae divergence time prior was set to a normal distribution, with the optimal time determined by Davis et al. set as the mean, and a standard deviation of 1.5 (to approximate the uncertainty around the mean reported by Davis et al. [2005]).

A second calibration point for these analyses was based on *Linum* pollen fossils. The oldest known *Linum* pollen grains are from late Eocene Priabonian strata dated approximately 33.9-37.2 mya, from the Ebro Basin of Northeastern Spain (Cavagnetto and Anadón 1996). The pollen grains are tricolpate and appear to be of either the *Linum catharticum* or *Linum austriacum* type described by Punt and Den Breejen (1981), and differ significantly from the pollen described from the Southeast Asian genera of Linoideae (which are pantoporate) and from members of the Hugonioideae (which are tricolporate, often with a reticulate exine patterns; Saad 1962). If accepted as belonging to the genus *Linum*, these fossils seem to provide evidence for the minimum age for the common ancestor of all *Linum* species (including segregate genera) of approximately 33.9 my. This calibration point was implemented in BEAST by setting the *tmrca* prior on the common ancestor of all *Linum* (including *Cliococca*, *Hesperolinon*, *Radiola*, and *Sclerolinon*) with a lognormal distribution (mean = 0, standard deviation = 1.0, zero offset = 33.9), which allows this divergence to be estimated no later than 33.9 mya, but does allow earlier estimates if supported by the data.

In BEAST, the MCMC chain was run for 30 million generations with the auto-optimization feature activated (initial 10% burn-in discarded from all calculations and estimates), sampling tree topology, model parameters, and divergence times every 1000 generations. The uncorrelated lognormal relaxed clock option was used for sampling branch lengths, with a Yule process model for speciation rate, as recommended in the BEAST manual for estimating divergence times on multispecies phylogenies. At the end of each BEAST run, parameter logs were examined using Tracer v1.4.1 (Rambaut and Drummond) to verify that the MCMC chain had reached stationarity and had sampled divergence time estimates and model parameters an adequate number of times (effective sample sizes > 200, as recommended in the BEAST manual). Because the Hugonioideae were found to be monophyletic in all optimal likelihood-based topologies, the subfamily was constrained to monophyly in the BEAST analysis.

RESULTS

Sequence and estimated substitution model parameters for each data matrix and the combined matrix are provided in Table 2.6, along with MP and ML-based tree scores obtained in each analysis.

Missing Data — Only partial sequences of *rbcL* could be obtained for *Indorouchera griffithiana* and *Philbornea magnifolia* (approximately 400 bp missing from 5' end of the gene). *Hugonia mystax* and *Linum hypericifolium* are similarly missing approximately 400 bp at their 3' ends. *Roucheria monsalveae* and *Linum arboreum* are missing the first 600 bp of *matK*. For *Roucheria calophylla*, the *rbcL* sequence was provided by Dr. Ken Wurdack (Smithsonian National Museum of Natural History); *matK* sequence was not available. The full sequence alignment is provided in Appendix A.

Results from rbcL — A strict consensus of MP trees is presented in Fig. 2.3, and the ML topology recovered by GARLI is presented in Fig. 2.4 (phylogram in Fig. 2.5). MP, ML, and Bayesian analyses of *rbcL* find both Linaceae and subfamily Linoideae to be monophyletic, with 100% bootstrap (MP and ML) and posterior probability (PP) support. Hugonioideae is shown to be monophyletic in the *rbc*L ML topology, but without significant bootstrap support.

Within the Linoideae, the blue-flowered linums (sections *Linum* and *Dasylinum*) are shown to be a well supported (MP 97%, ML 98%, PP 100%) lineage that is sister to a clade comprising the rest of the subfamily. The Southeast Asian genera are shown as a lineage sister to the yellow-flowered linums (sections *Cathartolinum*, *Linopsis*, and *Syllinum*) and the segregate genera, but this relationship receives low MP bootstrap support (62%) and insignificant (<50%) ML bootstrap and posterior probability.

Within the Hugonoiodeae, the strict consensus of MP trees and MP bootstrap values show that relationships among the genera and species of this subfamily are not consistently resolved, the only even moderately-supported relationships being the monophyly of *Durandea* (*Hugonia* sect. *Durandea*, including *Durandea pentagyna, D. neocaledonica,* and *H. penicillanthemum* (MP bootstrap 87%), the monophyly of *Hebepetalum* (MP bootstrap 70%), and the sister relationship of *Hugonia obtusifolia* and *H. spicata* (MP bootstrap 90%). The ML bootstrap and Bayesian analysis resulted in similar levels of support for those relationships. In the ML topology, *Hebepetalum* is shown as the earliest-diverging lineage of Hugonioideae. The *Durandea* clade appears sister to *Indorouchera* plus *Philbornea*. *Roucheria* is shown as sister to *Hugonia*, and their lineage as sister to the *Durandea-Indorouchera-Philbornea* clade. None of these intergeneric relationships receives significant ML bootstrap support, however.

Neither MP, ML, or Bayesian analyses of *rbcL* provide support for any family as the sister group to Linaceae. In the MP analysis, relationships among families of Malpighiales are largely unresolved. ML shows Linaceae sister to a clade consisting of representatives of Balanopaceae, Chrysobalanaceae, and Picrodendraceae, similar to the findings of Chase et al. (2002) and Davis and Chase (2004), but without significant bootstrap support. The placement of families of Cronquist's Linales are not well resolved, though they do not appear closely related to Linaceae in the ML topology.

Results from matK — The *matK* gene was found to have approximately twice the number of variable sites as *rbcL.* Results from MP and ML analyses of *matK* are summarized in Figs. 2.6 and 2.7, respectively (ML phylogram in Fig. 2.8). The Linaceae and Linoideae are again found to be monophyletic as currently circumscribed, each with 100% bootstrap support under both MP and ML, and 100% posterior probability. Within the Linoideae, *Linum* sections *Linum* and *Dasylinum* (the "blue-flowered" sections) form a strongly-supported monophyletic group (100% MP and ML bootstraps, 100% PP), and the clade of yellow-flowered linums and segregate genera is also well supported (98% MP and ML bootstraps, 100% PP). In the MP analysis of *matK* (Fig. 2.6), *Anisadenia* is shown as sister to the rest of Linoideae (MP bootstrap of 62), while the relationships of *Reinwardtia* and *Tirpitzia* are unresolved with respect to the two lineages of *Linum* and its segregates. The ML topology shows the Southeast Asian genera forming a monophyletic group sister to the rest of the Linoideae, but without significant bootstrap support for their monophyly and with low support (62% ML bootstrap, 75% PP) for their sister relationship to the remainder of Linoideae.

The Hugonioideae is also found to be monophyletic in the *matK* analyses, but with low bootstrap support (73% MP, 55% ML, 59% PP). Within Hugonoideae, *Roucheria* and *Hebepetalum* form a clade (56% MP, 53% ML, 70% PP) that is sister to the Old World genera, which are a well-supported lineage (96% MP, 99% ML, 100% PP). Generic relationships among Old World Hugonioideae are generally well resolved in both analyses of *matK*, with the *Durandea* clade sister to *Indorouchera* and *Philbornea*, and that lineage sister to *Hugonia*.

The *matK* analyses show Linaceae sister to Clusiaceae + Hypericaceae, a result not previously reported, but this relationship is not significantly supported by MP or ML bootstraps analyses. Relationships among the families of Malpighiales are generally not well supported by *matK* alone. Representatives of the families of Linales are shown dispersed throughout the order, not closely-related to Linaceae in the optimal ML topology.

Results of Combined Analyses — Parsimony, likelihood, and Bayesian analysis results for the combined data matrix are summarized in Figs. 2.9 and 2.10, with the combined phylogram shown in Fig. 2.11. These analyses also find Linaceae and Linoideae monophyletic (100% MP and ML bootstraps and 100% PP), and a weakly-supported monophyletic Hugonioideae (57% MP, 52% PP, ML <50%). Within Linoideae, the blue- and yellow-flowered (plus segregates) lineages of *Linum* are found to be well-supported monophyletic groups. The Southeast Asian genera are shown in unresolved relationships in the parsimony analysis, in a polytomy with the yellow-flowered (plus segregates) lineage of *Linum*, with only low bootstrap support (55%) placing them in that clade. In the ML and Bayesian analyses, the Southeast Asian genera form a monophyletic sister group to the rest of Linoideae, with low levels of support (56% ML bootstrap and 52% PP). Parsimony finds Linaceae sister to the Clusiaceae+Hypericaceae, while ML shows Linaceae sister to Phyllanthaceae+Picrodendraceae, both lacking significant support. Members of the Linales are dispersed among the other families of Malpighiales.

Molecular Dating — Table 2.6 lists the divergence times obtained for key nodes within Linaceae. The two analyses with different root age priors resulted in very similar age estimates for nodes within Linaceae, with the means generally within 1-2 million years of each other. While the deepest divergence in the family may have originated in the Cretaceous, most of the extant genera and species are estimated to have diverged more recently, with Linoideae beginning to diversify in the Eocene, and Hugoniodeae apparently diversifying later, in the Oligocene and Miocene (Fig. 2.12).

DISCUSSION

Linaceae is Monophyletic — In all of our analyses, the Linaceae, in its current accepted circumscription (including representatives all of the genera of both subfamilies), is found to be a strongly supported monophyletic group. This is not a particularly surprising result, although this study is the first to include all of the genera of Linaceae. This study shows that additional sampling from the tropical Linaceae does not result in the phylogenetic aggregation of "Linalean" taxa, with data from two markers. The dispersal of "Linales" families throughout the Malpighiales was presaged by morphological treatments and has been found in other molecular phylogenetic studies that lacked complete sampling of Linaceae. Strong support for family-level relationships in the order is generally lacking, but our analysis of the combined data matrix find some support for sister-group relationships of some "Linales" families with families other than Linaceae: Erythroxylaceae (represented by *Erythroxylum novocaledonicum*) to Rhizophoraceae (*Bruguiera gymnorhiza*) and Ixonanthaceae (*Ixonanthes reticulata*) to Ochnaceae (*Gomphia serrata*). The phylogenetic positions of Ctenolophonaceae and Humiriaceae are not well resolved. Recent studies of Malpighiales phylogeny with data from 17 chloroplast, nuclear, and mitochondrial markers also fail to resolve relationships among many families of the order, and do not identify the sister family of Linaceae, but do show the families of "Linales" to be dispersed among several different lineages (Wurdack and Davis 2009).

Subfamilial Relationships — While Linoideae is found to be a well-supported monophyletic grouping in all of our analyses, the Hugonioideae receives only tepid support in the analyses of *mat*K and the combined matrix. This seems to stem from the uncertain placement of the New World Hugonioideae, *Roucheria* and *Hebepetalum*. Our analyses tend to show the South American taxa as a distinct lineage, with the split between Old and New World Hugonioideae occurring at the base of the subfamily. Phylograms of the optimal *rbcL* and *matK* topologies (Figs. 2.5, 2.8) show that the branches at the base of both subfamilies are very short. This may be indicative of relatively rapid divergence within each subfamily (Fig. 2.12), making relationships among their earliest-diverging lineages difficult to resolve. While the molecular data tend to ally *Roucheria* and *Hebepetalum* with the Old World Hugonioideae, they do bear some morphological distinctions from the Old World Genera: their entirely arborescent habit and complete lack of any kind of hooked tendril or other organ that facilitaties a climbing habit. Collection of additional data from additional chloroplast and other markers, as well as additional taxa, particularly from *Roucheria* and *Hugonia*, will be necessary to clarify this situation.

Since both subfamilies are shown to be monophyletic in the optimal topologies (except for *rbcL* under MP criteria, Fig. 2.3), our results do not prohibit the recognition of Hugoniaceae as a distinct family, sister to the Linaceae s.s. This is represents a departure from the results of McDill et al. (2009), who found Hugonioideae to be paraphyletic with more limited sampling. Their sampling of Hugonioideae had the primary goal of rooting the Linoideae phylogeny, not examining the monophyly of Hugonioideae. While the paraphyly of Hugonioideae in that earlier study may have resulted from the limited sampling from Hugonioid taxa and outgroups, the lack of statistical support for Hugonioid monophyly in the current analyses leaves the matter open for further investigation.

Generic Relationships in Hugonioideae — With the exception of the New World lineage as described above, relationships within the Hugonioideae are resolved fairly consistently. The *Durandea* clade is a consistently found monophyletic group, sister to the small segregate genera *Philbornea* and *Indorouchera*, which has implications for the systematics of *Hugonia*. *Philbornea* and *Indorouchera* have usually been maintained as distinct from *Hugonia* due to their entirely glabrous surface (*Hugonia* species are generally pubescent, at least on the calyx (Van Hooren and Nooteboom 1984), different inflorescence structure (axillary racemes or fascicles versus panicles in *Hugonia*), and hook morphology ("hooked branchlets" in *Philbornea* and *Indorouchera*, respectively, versus "hooked tendrils" in *Hugonia* (Jardim 1999)). *Philbornea* and *Indorouchera* have also been maintained as distinct from each other, due to differences in inflorescence structure and the presence of resin on the buds and stipules of *Indorouchera* (van Hooren and Nooteboom 1984). *Durandea*, though, has received inconsistent treatment, either as a section of *Hugonia* or a distinct genus. In their 1984 treatment for Flora Malesiana, Van Hooren and Nooteboom, treating *Durandea* as a section of *Hugonia*, note that it is distinguished from sect. *Hugonia* (which has a notable indumentum) by being nearly glabrous on all parts (like *Indorouchera* and *Philbornea*), and having a fruit that splits into five pyrenes (the fruit is a coherent drupe-like berry in most species of *Hugonia* sect. *Hugonia* and in *Indorouchera* and *Philbornea*). *Durandea* also differs from *Hugonia* in lacking glands between the petals, as noted by Jardim (1999), who considered *Durandea* as a genus. Saad (1962) noted similarities in the pollen morphologies of *Durandea* and *Philbornea*.

Our analyses show that the *Durandea* clade, *Indorouchera*, and *Philbornea* constitute a lineage that is sister to the rest of *Hugonia*. *Hugonia penicillanthemum* appears to be part of the *Durandea* clade; although this species apparently has never been treated as a species of *Durandea*, it's morphology indicates it is a member of *Hugonia* sect. *Durandea*. While it would be premature to conclude definitively that *Durandea* is a monophyletic genus distinct from *Hugonia* (since additional sampling from either taxon could alter our understanding of their relationship), it seems apparent that *Durandea* probably should not be treated as a section of *Hugonia* unless *Indorouchera* and *Philbornea* are placed in *Hugonia* as well. Additional revisionary studies of the Hugonioideae, and increased phylogenetic sampling, will be necessary to address these questions of generic taxonomy.

Generic Relationships in Linoideae — With respect to relationships within Linoideae, the results of McDill et al. (2009) are largely compatible with those found here, with minor differences perhaps due to different taxon sampling and data. Their results also do not strongly resolve the position of the Southeast Asian genera. Their taxonomic sample included only a single species from each genus, whereas here we include three (of three) *Anisadenia* and two (of three) *Tirpitzia*, finding both genera to be monophyletic and well-supported.

Divergence Times and Biogeography — The divergence times estimated in this study (Table 3.6) also depart significantly in some cases from those estimated in McDill et al. (their Table 4) for nodes the two studies have in common. The estimates of McDill et al. are generally older, falling near the upper (older) bound of the 95% HDP confidence intervals estimated in BEAST. This may be a result of altered taxon sampling and additional data in the present analysis, the use here of an additional fossil calibration point, and the difference in estimation method (McDill et al. employed penalized likelihood conditioned on the optimal ML *rbcL* topology obtained in their Linoideae-centric analyses, whereas we here employ a Bayesian methodology sampling different potential topologies and branch lengths).

Davis et al. (2005) concluded that the order Malpighiales underwent a rapid radiation in the late Aptian, from 94 to 114 million years ago, as elements of moist, closed-canopy, megathermal rain forests. The earliest common ancestor of Linaceae may indeed have originated within that time frame (node A), but our results show that the extant tropical components of Linaceae, the Hugonioideae, diversified at a much later time, with their earliest divergence occurring between 30 and 11 mya, with the average of divergence time estimates of that clade in the early Miocene (Fig. 2.12, node I). The Miocene is thought to have exhibited a relatively warm global climate optimal for rainforest expansion (Zachos et al. 2001, Morley 2000), which could have influenced the diversification of extant tropical Linaceae. The Linoideae appears to have initially diversified in the mid-to-late Eocene (Fig. 2.12, node C), a period of cooling global climate that promoted the establishment of communities dominated by grasses and other herbaceous taxa in the Northern Hemisphere (Tiffney and Manchester 2001), habitats where species of *Linum* and its segregates are commonly found today.

The Southeast Asian tropical/subtropical genera of Linoideae are shown to be the basally-diverging members of that subfamily, with moderate ML bootstrap and Bayesian support (Fig. 2.10). This may indicate that the more temperate members of Linaceae (*Linum* and its segregates) are derived from tropical or subtropical ancestry, but not from within the extant, tropical subfamily Hugonioideae. In the absence of a definitive sister-group for Linaceae, the characteristics – ecological or morphological – of the common ancestor of Linoideae and Hugonioideae remain a mystery. Interpretation of the biogeographic history of the Hugonioideae is further hindered by the lack of strongly supported basal resolution in the subfamily. With the current taxon sampling and phylogenetic resolution, and given the lack of a consistently identified outgroup for the Linaceae, it is not possible to determine whether the Hugonioideae, or Linaceae in general, had its origins in the Old World or New World tropics.

The presence of Hugonioideae in the tropics of Africa and South America, with the basal phylogenetic split in the subfamily occurring perhaps between Old World and New World lineages, brings to mind the biogeographic pattern of Gondwanan vicariance (Raven and Axelrod 1974). However, considering published dates for the break-up of Gondwana (McLoughlin 2001), a Gondwanan biogeographic scenario would require the most recent common ancestor of these taxa to be present prior to the separation of South America and Africa, which was complete by approximately 100 million years ago. The Hugonioideae seem to have diverged much more recently, approximately 40 million years ago at the earliest, too late to have been affected by the breakup of Gondwana. *Hebepetalum* and *Roucheria* species are estimated to have diverged from from Old World ancestry within the last 10 mya (Fig. 2.12), which would also seem to preclude a “Boreotropical” scenario involving the land bridge thought to have spanned the North Atlantic during the middle and late Eocene (Tiffney 1985). This land bridge is thought to have been concurrent with a global thermal maximum that could have allowed migration of tropical taxa at relatively high latitudes (Tiffney and Manchester, 2001). Such scenarios have been found to be compatible with the phylogenies, fossil distributions, and divergence times of several angiosperm lineages that currently exhibit pantropical distributions similar to Hugonioideae, such as the Burseraceae (Weeks et al. 2005) and the Malpighiaceae (Davis et al. 2002). Long-distance dispersals have also been implicated as important factors in the establishment of Northern and Southern Hemisphere disjunct distributions in plants (Givnish and Renner, 2004; Pennington et al. 2004; Sanmartin and Ronquist, 2004), and may have played a role in biogeographic history of Linaceae, but adequate testing of these hypotheses in Hugonioideae awaits more robust phylogenetic resolution and more extensive taxon sampling.

CONCLUSION

Our results indicate that the two subfamilies of Linaceae are monophyletic and sister to each other, although the monophyly of Hugonioideae is not well supported. Our results do not indicate that any members of Cronquist’s Linales, or the historical, expanded concepts of Linaceae, are closely related to Linaceae, but support for relationships among families in Malpighiales is paltry. We can conclude that *Durandea* might best be recognized as a genus distinct from *Hugonia* rather than a section of it, unless the species currently placed in *Indorouchera* and *Philbornea* are transferred to *Hugonia* as well. A global taxonomic revision of *Durandea* and *Hugonia* is recommended in order to clarify generic circumscriptions and membership. Based on estimates of divergence times, the biogeographic pattern exhibited by the Hugonioideae does not seem to be the result of Gondwanan vicariance or Boreotropical migration, which implicates long-distance dispersal as a remaining possible mechanism for the establishment of their pantropical distribution.

Table 2.1. The genera of Linaceae, with the number of species known in each, the number sampled for this investigation of subfamilial relationships, and their general geographic distributions.

	# of species (# sampled)	Distribution
Subf. Linoideae		
Anisadenia	3(3)	Southeast Asia
Cliococca	1(1)	Temperate South America
Hesperolinon	13(4)	W. North America
Linum	187(17)	Temperate Cosmopolitan
Radiola	1(1)	Europe
Reinwardtia	2(1)	Southeast Asia
Sclerolinon	1(1)	W. North America
Tirpitzia	3(2)	Southeast Asia
Subf. Hugonioideae		
Durandea	15(3)	Malaysia
Hebepetalum	3 (2)	Tropical S. America
Hugonia	30 (7)	Tropical Africa, SE Asia
Indorouchera	2(1)	Indonesia
Philbornea	1(1)	Indonesia
Roucheria	7 (3)	Tropical S. America

Table 2.2. Historical treatments of Linaceae, and the current, generally accepted treatment (Dressler et al. in press).

Planchon 1848	Bentham and Hooker 1862	Baillon 1878	Winkler 1931	Dressler et al.
		Subf. Lineae	**Subf. Linoideae**	**Subf. Linoideae**
Sect. Eulineae	**Tribe Eulineae**		**Tribe Eulineae**	
Linum	*Linum*	*Linum*	*Linum*	*Linum*
Radiola	*Radiola*	*Radiola*	*Radiola*	*Radiola*
Reinwardtia	*Reinwardtia*		*Reinwardtia*	*Reinwardtia*
			Tirpitzia	*Tirpitzia*
			Hesperolinon	*Hesperolinon*
				Sclerolinon
Sect. Anisadeneae			**Tribe Anisadenieae**	*Cliococca*
Anisadenia	*Anisadenia*	*Anisadenia*	*Anisadenia*	*Anisadenia*
Sect. Hugonieae	**Tribe Hugonieae**	**Subf. Hugonieae**	**Tribe Hugonieae**	**Subf. Hugonioideae**
Hugonia	*Hugonia*	*Hugonia*	*Hugonia*	*Hugonia*
Roucheria	*Roucheria*		*Roucheria*	*Roucheria*
Durandea			*Durandea*	*Durandea*
	Tribe Erythroxyleae	**Subf. Erythroxyleae**	*Philbornea*	*Philbornea*
	Erythroxylum	*Erythroxylum*	*Indorouchera*	*Indorouchera*
	Hebepetalum		*Hebepetalum*	*Hebepetalum*
	Aneulophus	*Aneulophus*		
	Tribe Ixonanthese		**Subf. Ixonanthoideae**	
	Ochthocosmus	Ochthocosmus	Ochthocosmus	
	Ixonanthes	Ixonanthes	Ixonanthes	
	Durandea		**Subfamily Ctenolophonoideae**	
	Phyllocosmus		Ctenolophon	
	Sarcotheca			
		Subfamily Houmirieae	**Subf. Humirioideae**	
		Humiria	*Humiria*	
			Sacoglottis	
			Vantanea	
			Tribe Nectaropetaleae	
			Peglera	
			Nectaropetalum	

Table 2.3. Voucher specimens for taxa sampled for *matK* and *rbcL*, and GenBank accession numbers for previously published sequences included in analyses. For new sequences obtained for this study, GenBank Accession numbers are designated as Tba ("to be announced"), and will be obtained upon journal publication. Sequence alignments are provided in Appendix A.

Taxon	Distribution	Voucher Collection	Herb.	Locality	Genbank Accession # matK	rbcL
Linoideae						
Anisadenia khasayana Griff.	Nepal	F. Miyamoto et al. 9440158	GH	Nepal	Tba	tba
Anisadenia pubescens Griff.	China	Bartholomew et al. 1984 Sino-American Bot. Exped. No. 1011	GH	China	Tba	FJ169557
Anisadenia saxatilis Wall. Ex Meissn.	Nepal	M. Mikage et al. 9470573	GH	Nepal	Tba	tba
Cliococca selaginoides (Lam.) C.M.Rogers & Mildner	S. Am.	A. Krapovickas & C.L. Cristóbal 34169	MO	Brazil,	TBA	FJ169558
Hesperolinon clevelandii Small	N. Am	Ertter 8537	TEX	CA	Tba	tba
Hesperolinon disjunctum Sharsm.	N. Am.	McDill 87	TEX	CA	Tba	tba
Hesperolinon drymarioides Small	N. Am	Dibble and Griggs 14	MO	CA	tba	FJ169560
Hesperolinon micranthum Small	N. Am.	H. van der Werff and D. Clark 4574	MO	CA	TBA	FJ169561
Linum arboreum L.	Europe	Dechamps 9103	MO	Greece	Tba	tba
Linum berlandieri Hook.	N. Am.	B.L. Turner 21-427	TEX	TX, Kerr Co.	TBA	FJ169567
Linum bienne Mill.	Europe	McDill 2004-XII-5.1	TEX	Chile (introduced)	Tba	tba
Linum catharticum L.	Europe	A.K. Skvortsov et al. 4263078	MO	Estonia	Tba	tba
Linum comptonii C.M. Rogers	S. Africa	Elsie Esterhuysen 35882	MO	South Africa	TBA	FJ169572
Linum flavum L.	Eurasia	C.M. Rogers 13374	MO	Turkey	TBA	TBA
Linum hirsutum L.	Eurasia	P. Frost-Olsen 4542	MO	Bulgaria	Tba	tba
Linum hypericifolium Salisb.	Eurasia	M. Merello et al. 2116	MO	Georgia	Tba	tba
Linum lewisii Pursh	N. Amer.	Turner 21-263	TEX	TX, Reeves Co.	n.a.	tba
Linum lewisii Pursh		n.a.	n.a.	n.a.	AB233791	n.a.
Linum monogynum G. Forst.	Australia	Meudt 245	TEX	Tasmania	Tba	tba
Linum narbonense L.	Europe	C. Ardo et al. 2303	TEX	Spain	Tba	tba
Linum nervosum Waldst. & Kit.	Eurasia	MBG 4250021	MO	Russia	Tba	tba
Linum oligophyllum Willd.	S. Am.	D.N. Smith et al. 9426	MO	Peru	TBA	TBA
Linum perenne L	Eurasia	MJG 040929	MJG	(cultivated)	na	FJ169582
Linum perenne L.		n.a.	n.a.	n.a.	AB038182	na
Linum pratense Small	N. Am	McDill 2005-V-13.1	TEX	TX, Montague Co.	tba	tba
Linum rupestre (A.Gray) Engelm. ex A.Gray	N. Am.	B.L. Turner 21-589	TEX	TX, Sutton Co.	TBA	FJ169586
Linum suffruticosum L.	Europe	C. Navarro et al. CN 2339	TEX	Spain	Tba	FJ169591
Linum usitatissimum L	Eurasia	MJG 040924	MJG	(cultivated)	Tba	FJ169596
Linum volkensii L.	E. Africa	R.E. Gereau & C.J. Kayombo 4662	MO	Tanzania	Tba	FJ169597
Radiola linoides Roth.	Eurasia, N.	Knut Egeröd 6935	MO	Sweden	Tba	tba

Reinwardtia indica Dum.	Africa Nepal, India	McDill s.n. 2002	TEX	(cultivated)	tba	FJ169599
Sclerolinon digynum (A. Gray) C.M. Rogers	N. Am.	M.S. Taylor 3935	MO	CA, Plumas Co.	TBA	FJ169601
Tirpitzia ovoidea Chun & F.C.How ex W.L.Sha	China	Wei Fanan 1806	MO	China	Tba	tba
Tirpitzia sinensis (Hesml.) Hall.	China	Libo Team 81-6-0105	MO	China	tba	tba
Hugonioideae						
Durandea (=Hugonia* subg. *Durandea)						
Durandea pentagyna K. Schum	SW Pacific	W. Takeuchi 4523	MO	Papua New Guinea	tba	FJ169559
Durandea neocaledonica (Vieill.) Baum.-Bod.	New Caledonia	Gordon McPherson 5443	MO	New Caledonia	Tba	tba
Hugonia penicillanthemum Baill. ex Pancher & Sebert	W Pacific	A. Gentry & G. McPherson 34683	MO	New Caledonia	Tba	tba
Hebepetalum						
Hebepetalum neblinae A. Jardim & P.E. Berry	S. Amer.	P. E. Berry, C. Gómez, D. Acosta 6319	MO	Venezuela	Tba	tba
Hebepetalum humiriifolium Benth.	S. Amer.	J.J. Wurdack 2467	F	Peru	Tba	tba
***Hugonia* (= *Hugonia* subg. *Hugonia*)**						
Hugonia aff. *planchonii* Hook. F.	Africa	Gordon McPherson 16804	MO	Gabon	Tba	tba
Hugonia busseana Engl.	Africa	A. Chikuni, I.H. Patel, W. Nachamba 144	MO	Malawi	Tba	tba
Hugonia castaneifolia Engl.	Africa	R.E. Gereau et. al 6206	MO	Tanzania	Tba	tba
Hugonia gabunensis Engl.	Africa	Lee White 0908	MO	Gabon	Tba	FJ169563
Hugonia longipes H. Perr.	Africa	G.E. Schatz & J.S. Miller 2476	MO	Madagascar	Tba	tba
Hugonia mystax L.	S.E. Asia	P.L. Comanor 414	MO	Sri Lanka	Tba	tba
Hugonia obtusifolia C.H. Wright	Africa	Lee White 0978	MO	Gabon	Tba	tba
Hugonia orientalis Engl.	Africa	P. van Wyk #BSA 2606	MO	Zimbabwe	Tba	tba
Hugonia spicata Oliv.	Africa	Carvalho 3850	MO	Equatorial Guinea	Tba	tba
Indorouchera						
Indorouchera griffithana (Planch.) Hallier f.	SE Asia	T.G. Laman et al. TL 1155	GH	Indonesia	Tba	tba
Philbornea						
Philbornea magnifolia Hallier f.	W Pacific	Niga Nangkat NN 161	GH	Brunei	Tba	tba
Roucheria						
Roucheria calophylla Planch.	S. Amer.	*Alencar 593*	NY	Brazil	n.a.	FJ169600
Roucheria monsalveae A.H. Gentry	S. Amer.	Miryam Monsalve B. 1996	MO	Colombia	tba	tba
Roucheria schomburgkii Planch.	S. Amer.	Manuel Rimachi Y. 8416	MO	Peru	tba	FJ169603
Other Malpighiales	**Family**					
Campostylus mannii (Oliver) Gilg.	Achariaceae				AB233736	AB233840
Kiggelaria africana L.	Achariaceae				AB233739	AB233843
Balanops pancheri Baill.	Balanopaceae				AB233740	AB233844
Euphronia guianensis (R.H. Schomb.) Hallier f.	Chrysobalanaceae				AB233741	AB233845
Trigonia boliviana Warm.	Chrysobalanaceae				AB233744	AB233848
Clusia rosea Jacq.	Clusiaceae				AB233745	AB233849
Garcinia subelliptica Merr.	Clusiaceae				AB233746	AB233850
Ctenolophon englerianus	Ctenolophonaceae				EF135524	AJ402940

Mildbr.			
Elatine triandra Schkuhr	Elatinaceae	AB233749	AB233853
Erythroxylum novocaledonicum O.E. Schulz	Erythroxylaceae	AB233826	AB233930
Acalypha insulana Müll. Arg.	Euphorbiaceae	AB233750	AB233854
Euphorbia humifusa Willd.	Euphorbiaceae	AB233780	AB233884
Manihot esculenta Crantz.	Euphorbiaceae	AB233776	AB233880
Pimelodendron griffithianum (Müll.Arg.) Benth.	Euphorbiaceae	AB233783	AB233887
Ricinus communis L.	Euphorbiaceae	AB233767	AB233871
Jatropha integerrima Jacq.	Euphorbiaceeae	AB233775	AB233879
Humiria balsamifera Aubl.	Humiriaceae	AB233785	AB233889
Sacoglottis sp.	Humiriaceae	AB233786	AB233890
Cratoxylum cochinchinense Blume	Hypericaceae	AB233787	AB2338911
Irvingia malayana Oliver	Irvingiaceae	AB233789	AB233893
Ixonanthes reticulata Jack	Ixonanthaceae	AB233789	AB233893
Lacistema aggregatum (P.J. Bergius) Rusby	Lacistemaceae	AB233790	AB233894
Byrsonima crassifolia H.B.&K.	Malpighiaceae	AB233794	AB233898
Malpighia glabra L.	Malpighiaceae	AB233796	AB233900
Gomphia serrata (Gaertn.) Kanis	Ochnaceae	AB233803	AB233907
Passiflora quadrangularis L.	Passifloraceae	AB233808	AB233912
Bischofia javanica Blume	Phyllanthaceae	AB233813	AB233917
Flueggea virosa (Roxb. Ex Willd.) Voigt	Phyllanthaceae	AB233815	AB233919
Phyllanthus flexuosus(Siebold & Zucc.) Mull. Arg.	Phyllanthaceae	AB233817	AB233921
Scagea oligostemon (Guillaumin) McPherson	Picrodendraceae	AB233821	AB233925
Drypetes littoralis (C.B. Rob.) Merr.	Putranjivaceae	AB233823	AB233927
Bruguiera gymnorhiza (L.) Lam.	Rhizophoraceae	AB233823	AB233927
Flacourtia indica Merr.	Salicaceae	AB233829	AB233933
Lunania parviflora Spruce ex. Benth.	Salicaceae	AB233832	AB233936
Ionidium commune A.St.-Hil.	Violaceae	AB233836	AB233940
Outgroups			
Euonymus sieboldianus Blume	Celastraceae	AB233838	AB233942
Datisca cannabina L.	Datiscaceae	AB016467	AB016453
Albizia tomentosa Standl.	Fabaceae	AF5234093	n.a.
Albizia julibrissin Durazz.	Fabaceae	n.a.	Z70147
Quercus rubra L.	Fagaceae	AY312058	AB125026
Oxalis corniculata L.	Oxalidaceae	AB233839	AB233943
Kerria japonica (L.) DC.	Rosaceae	AB073686	AF132893

Table 2.4. Primer sequences.

Primer name	Sequence (5’-3’)	Reference
rbcL 1F	ATGTCACCACAAACAGAAAC	Olmstead et al. 1992
rbcL 507F	TAYTGGGCTGTACTATTAAAC	McDill et al. 2009
rbcL 507R	GTTTAATAGTACAGCCCARTA	(rev/comp of 507F)
rbcL 4R Hugonioid	GTCTATCAATAACTGCATGCATTGC	This study.
rbcL 4F Hugonioid	GCAATGCATGCAGTTATTGATAGAC	This study.
rbcL 1460 R	CTTTTAGTAAAAGATTGGGCCGAG	Chase et al. 1993
rbcL Rb Hugonioid	CTCCTTCCATAYTTCACAAGCAGC	This study.
matK 1F	ACTGTATCGCACTATGTATCA	Sang et al. 1997
matK 1320R	GATCCGCTATAATAATGAGA	Sang et al. 1997
HugoB	CTTTCGCTCAAGAAGGAACCGA	This study
BlueA	TAGCTTYYTTCTTGAGCGAAAT	This study
BlueB	ATTTCGCTCAAGAARRAAGCT	This study
648F Linum	CAAGCGGGATCTTTTATCCA	This study
648R Linum	TGGATAAAAGATCCCGCTTG	This study
425F Linum	CTTTCGCTCAAGAAGAAACTG	This study
425R Linum	TCAGTTTCTTCTTGAGCGAAAG	This study

Table 2.5. Sequence information.

	rbcL	matK	Combined
Number of Taxa (Linaceae only)	92 (51)	91 (50)	92 (51)
Aligned Length	1293	1504	2797
Included characters	1293	1305	2586
Constant characters (Linaceae only)	845 (1112)	444 (871)	1289 (1983)
Variable characters (Linaceae only)	448 (181)	861 (434)	1309 (615)
Informative characters (Linaceae only)	305 (113)	659 (307)	964 (420)
# of MPT recovered	100158	1898	314
MPT Length (inf. only)	1725 (1566)	3691 (3440)	5491
CI (inf. only)	0.358 (0.293)	0.411 (0.368)	0.389 (0.340)
RI	0.671	0.709	0.690
RC (inf only)	0.241 (0.197)	0.291 (0.261)	0.268 (0.234)
Substitution Model Selected (AIC)	GTR+I+G	TVM+I+G	GTR+I+G
freqA	0.2665	0.3118	0.2936
freq C	0.1784	0.1564	0.1697
Freq G	0.2504	0.1447	0.1912
Freq T	0.3046	0.3871	0.3455
[A-C]	1.3285	1.670	1.2579
[A-G]	3.0656	2.1976	2.3599
[A-T]	0.6041	0.2090	0.3270
[C-G]	0.9496	1.1763	0.9925
[C-T]	4.8131	2.1976	2.9488
[G-T]	1.000	1.0000	1.0000
Gamma Shape	0.7312	1.3508	1.1402
Proportion of Invariable Sites	0.5422	0.0980	0.3652
-Ln L (modeltest)	10883.4316	19776.4453	31400.4297
-Ln L (GARLI, RAxML for combined)	10785.7401	19706.8311	31221.1671

Table 2.6. Estimated ages for nodes indicated in Fig. 2.13, in millions of years before present. Mean divergence times and confidence interval (95% height density proportion) estimated in BEAST, with the age of the root set at the maximum and minimum optimal values estimated by Davis et al. (2005) based on combined atpB, rbcL, 18S, and nad1B-C sequences and several fossil calibrations.

	Root at 105 mya			Root at 94.5 mya		
MRCA of:	95% HPD upper	mean	95% HPD lower	95% HPD upper	mean	95% HPD lower
A) Linaceae and Irvingiaceae	106.83	104.88	102.92	96.36	94.39	92.48
B) Linaceae	80.90	58.77	41.00	76.53	56.05	40.42
C) Linoideae	47.90	37.94	33.93	43.96	36.97	33.93
D) *Linum* (including segregate genera)	46.79	37.31	33.92	42.85	36.46	33.92
E) *Anisadenia, Reinwardtia, Tirpitzia*	44.55	30.46	15.50	41.26	29.35	15.41
F) *Radiola* and yellow-flowered *Linum*	38.43	29.01	20.54	35.78	28.20	20.18
G) Blue-flowered *Linum*	35.85	26.71	17.79	33.66	25.90	17.98
H) Yellow-flowered *Linum*	32.46	24.50	16.58	30.96	23.77	16.35
I) Hugonioideae	37.59	22.83	11.53	35.35	21.84	10.96
J) *Linum perenne* and *L. nervosum*	25.53	16.80	8.05	24.63	16.20	8.39
K) North American Blue-flowered *Linum*	3.70	1.42	0.02	3.62	1.38	0.01

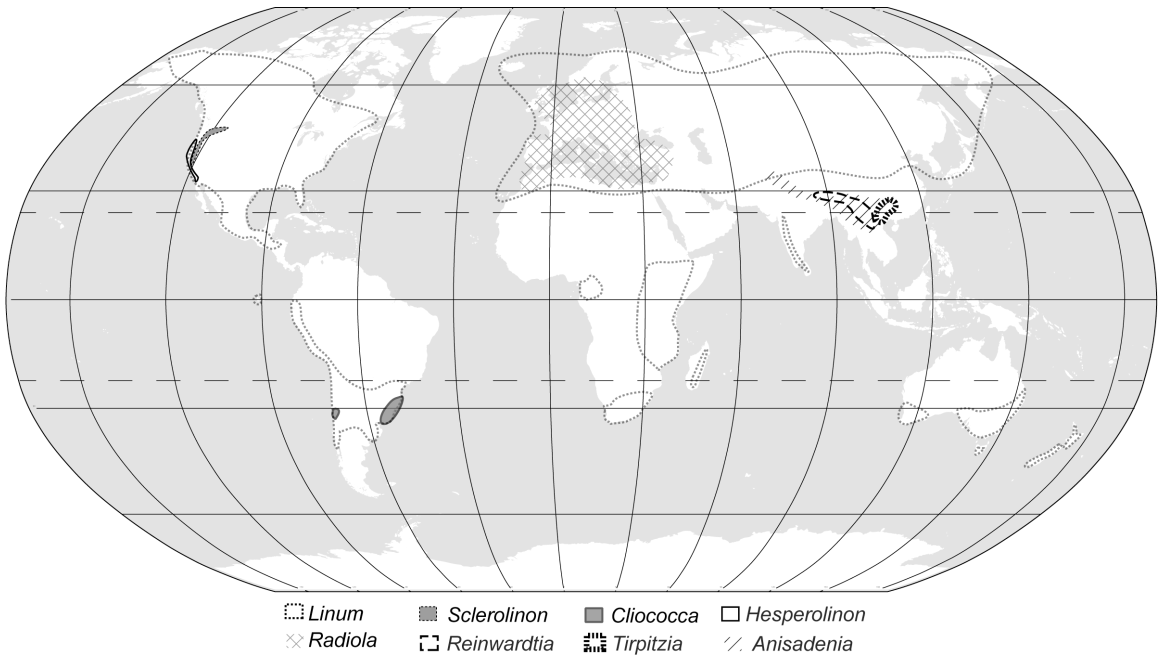

Fig. 2.1: Distributions of the eight genera of Linaceae subf. Linoideae.

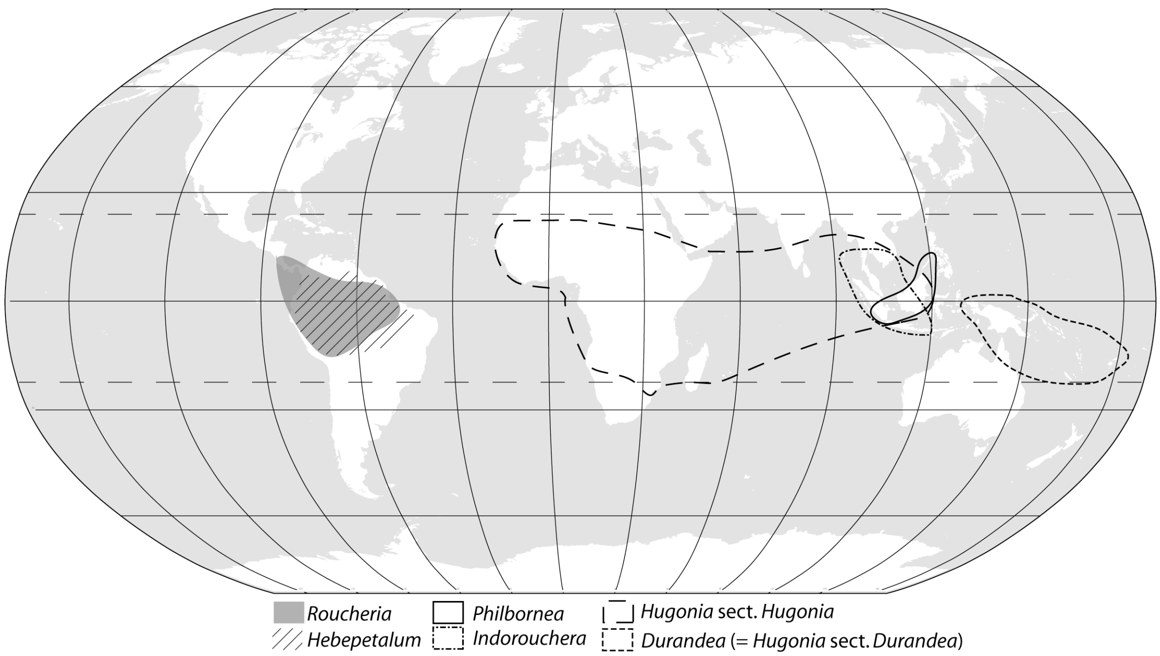

Fig. 2.2. Distributions of the six genera of Linaceae subfamily Hugonioideae, based on Jardim (1999) and Van Hooren and Nooteboom (1984).

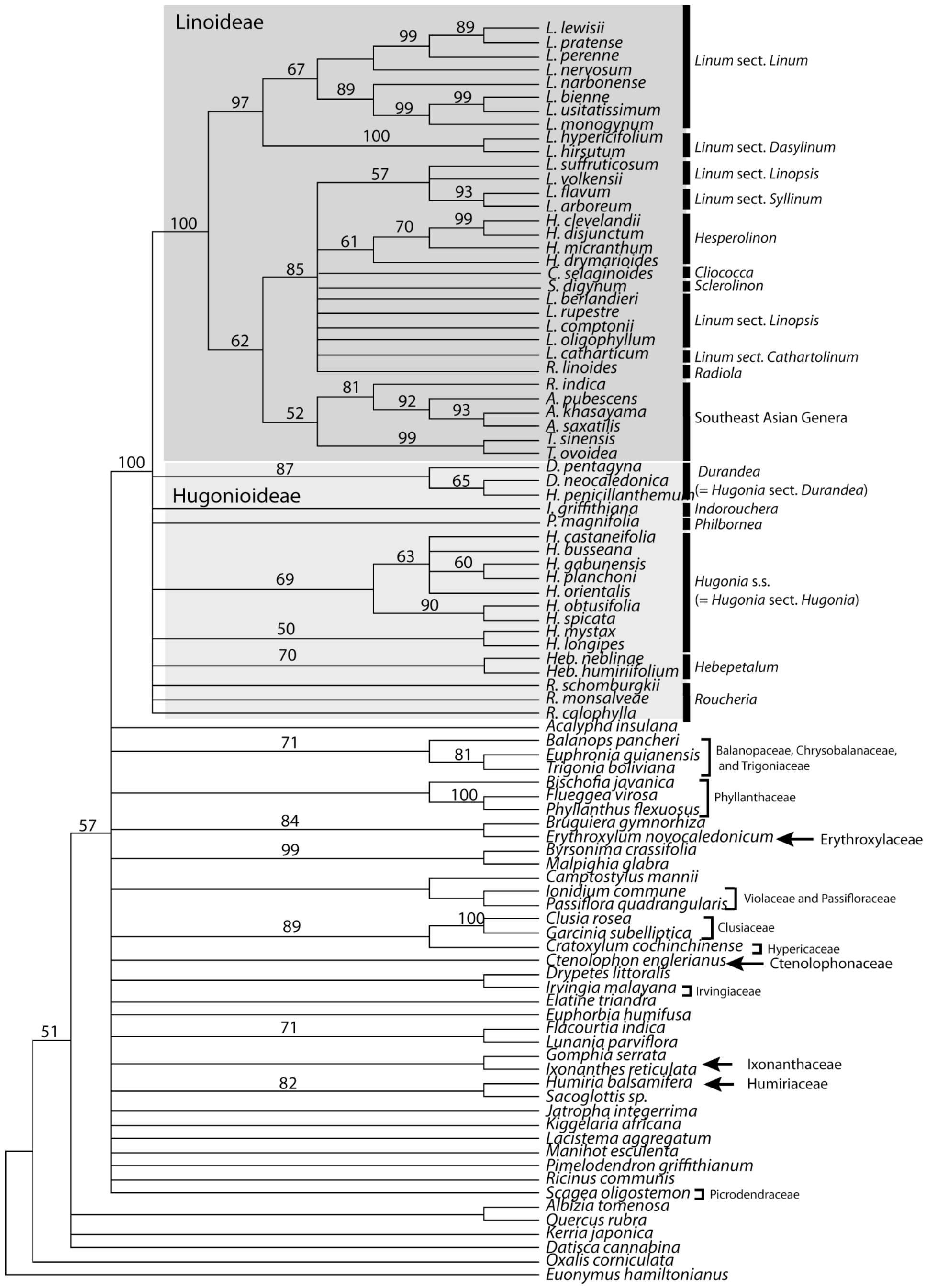

Fig. 2.3. Strict consensus of 100, 158 MP trees (L=1725) based on rbcL data only, with MP bootstrap values above branches (<50% not shown). Linaceae subfamilies as indicated by shaded boxes, genera by black bars. Arrows indicate representatives of the families of Cronquist's Linales, brackets taxa that have appeared in sister-lineages to the Linaceae in previous studies.

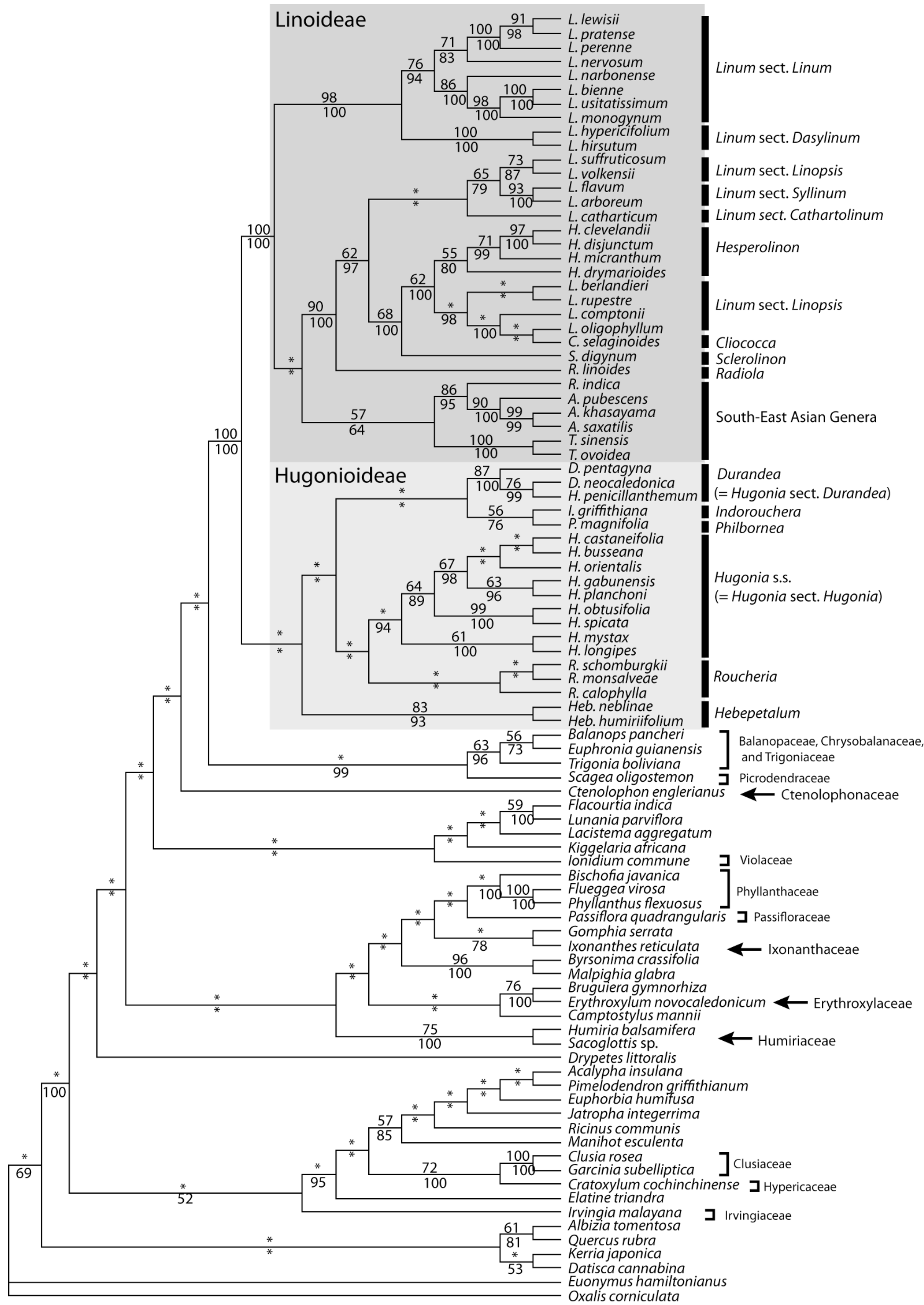

Fig. 2.4: ML topology for rbcL recovered by GARLI, with ML bootstrap percentages above branches, Bayesian posterior probabilitiesbelow (values <50% indicated by *).

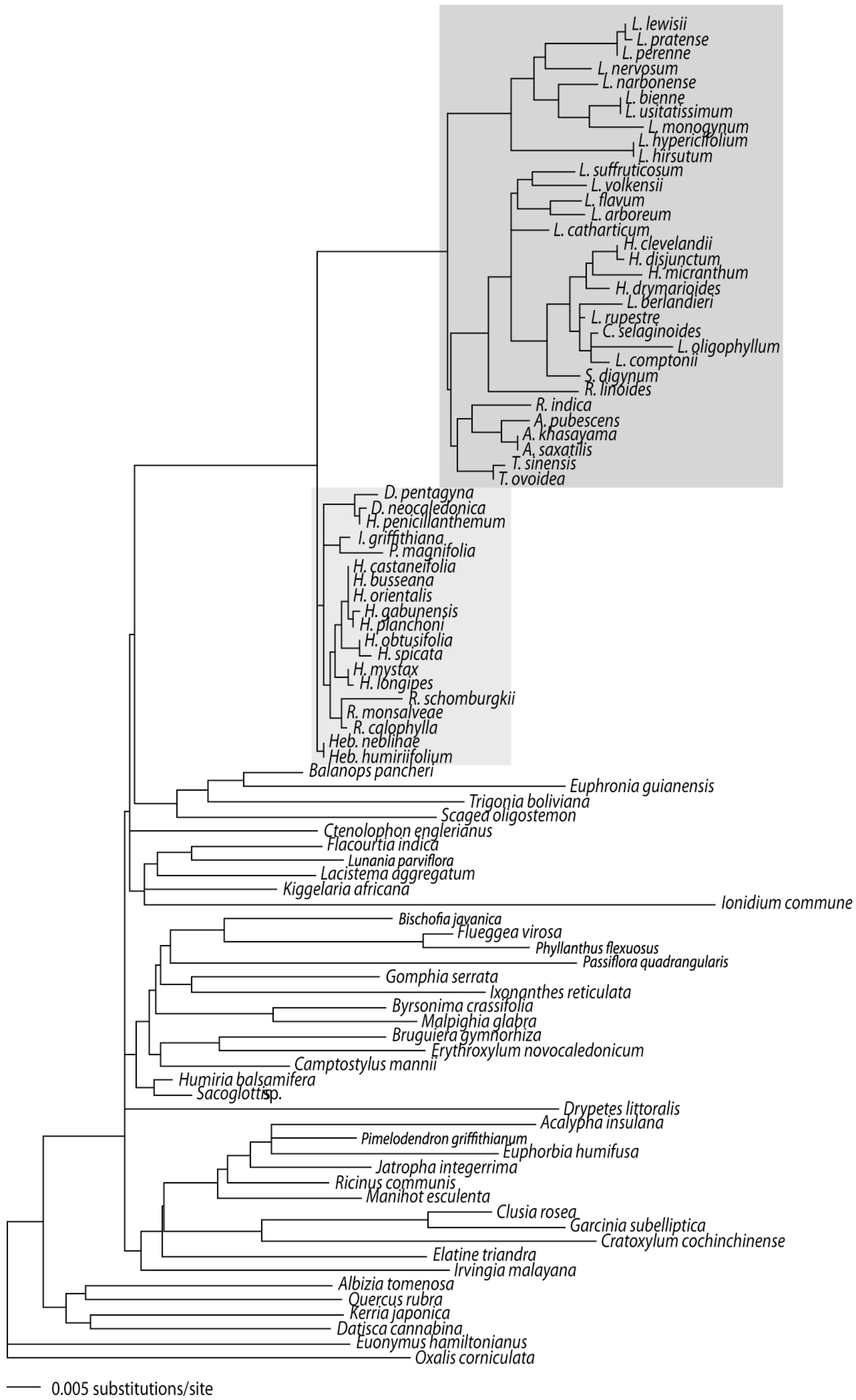

Fig. 2.5: ML phylogram for *rbc*L. Darker shading indicates Linoideae, lighter Hugonioideae.

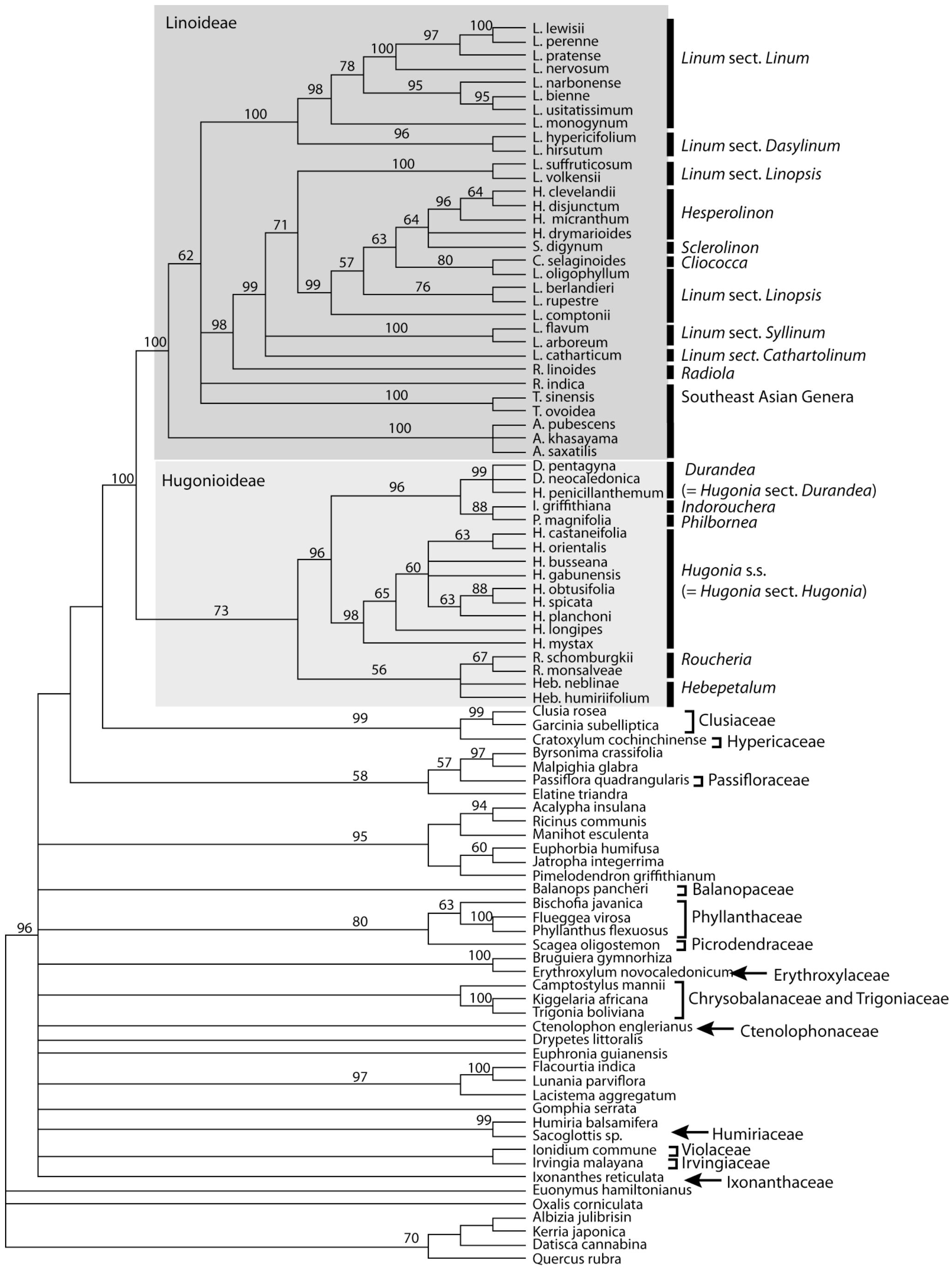

Fig. 2.6: Strict consensus of 1898 most parsimonious trees (L=3691) recovered during search on matK data alone, with MP bootstrap values above branches (values <50% not shown).

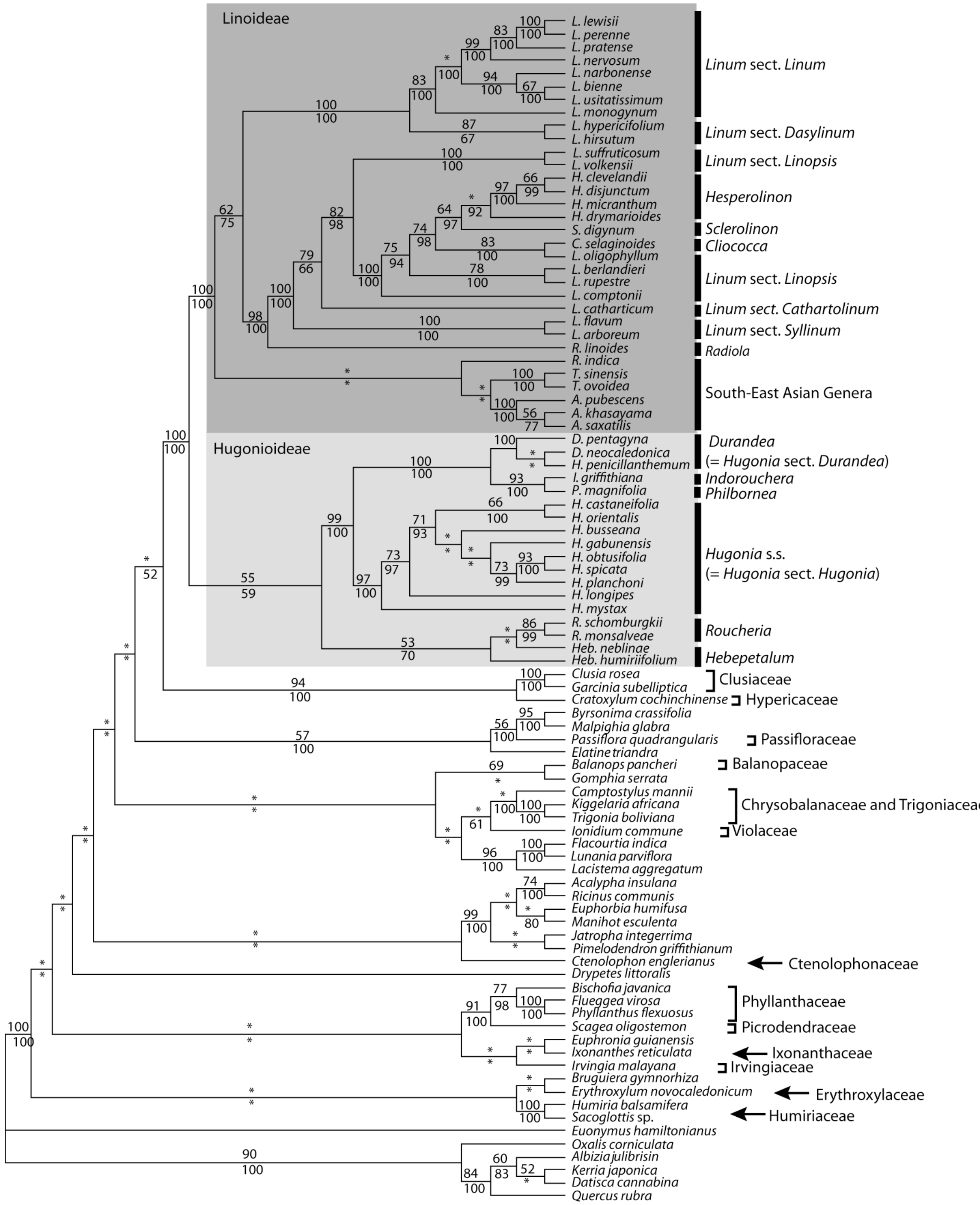

Fig. 2.7: ML topology for matK recovered by GARLI, with ML bootstrap values above branches, Bayesian posterior probabilities (as %) below (support values <50% indicated by *).

Fig. 2.8: ML phylogram for matK data. Darker shading indicates Linoideae, lighter Hugonioideae.

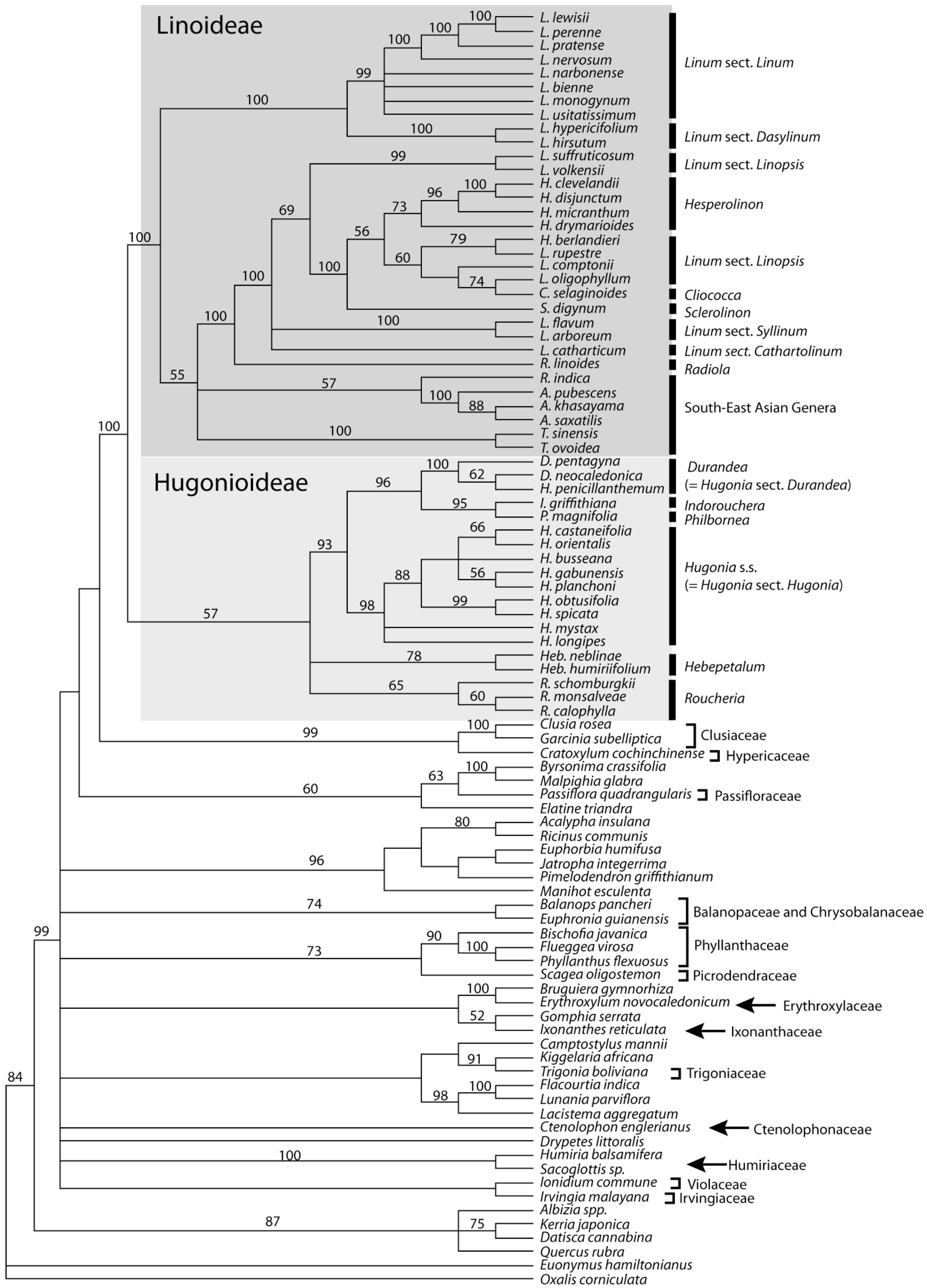

Fig. 2.9: Strict consensus of 314 most-parsimonious trees (L=5491) recovered from search on combined rbcL+matK matrix. MP bootstrap values above branches (values <50 not shown).

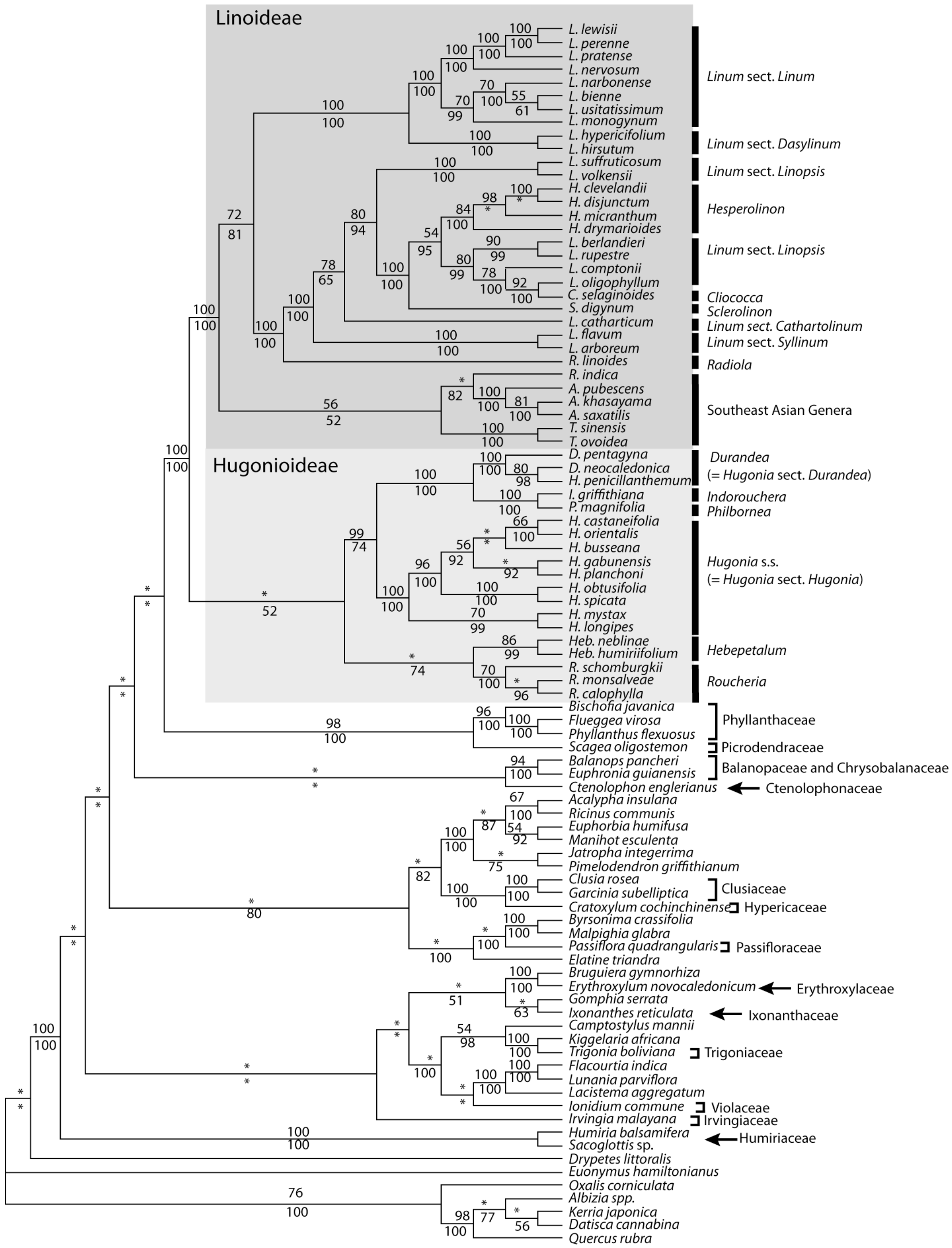

Fig. 2.10: ML topology for combined data recovered by RAxML using a partitioned model, with ML bootstrap percentages above branches and Bayesian posterior probabilities (as %) below branches. Values <50% indicated by *.

Fig. 2.11: ML phylogram recovered from combined data matrix by RAxML. Darker shading indicates Linoideae, lighter Hugonioideae.

Fig. 2.12: Chronogram (maximum clade credibility topology) resulting from BEAST analysis with the split of Linaceae and Irvingiaceae set at 105 mya, the maximum optimal divergence time estimated by Davis et al. (2005). Node ages set at average divergence time estimated by BEAST; grey bars indicate 95% height density proportion confidence intervals around nodes listed in Table 2.6. Clade posterior probabilities based on the post-burn-in tree sample indicated above branches (only values > 0.5 shown). Node D (common ancestor of all Linum and segregate genera) not shown due to non-monophyly of that grouping in the maximum clade credibility tree. Time scale given in millions of years before present. Major geologic time intervals are also indicated (pl = Pliocene, p = Pleistocene).


Roucheria calophylla
Roucheria monsalveae
Hugonia mystax
Hugonia longipes
Hugonia gabunensis
Hugonia planchoni
Hugonia orientalis
Hugonia busseana
Hugonia castaneifolia
Hugonia obtusifolia
Hugonia spicata
Roucheria schomburgkii
Indorouchera griffithiana
Philbornea magnifolia
Hebepetalum neblinae
Hebepetalum humiriifolium
Hugonia neocaledonica
Hugonia penicillanthemum
Durandea pentagyna
Radiola linoides
Linum volkensii
Linum suffruticosum
Linum flavum
Linum arboreum
Linum catharticum
Sclerolinon digynum
Hesperolinon drymarioides
Hesperolinon micranthum
Hesperolinon clevelandii
Hesperolinon disjunctum
Linum berlandieri
Linum rupestre
Linum comptonii
Cliococca selaginoides
Linum oligophyllum
Tirpitzia sinensis
Tirpitzia ovoidea
Reinwardtia indica
Anisadenia pubescens
Anisadenia khasayama
Anisadenia saxatilis
Linum nervosum
Linum perenne
Linum pratense
Linum lewisii
Linum narbonense
Linum monogynum
Linum bienne
Linum usitatissimum
Linum hypericifolium
Linum hirsutum
Irvingia malayana
A
B
C
E
F
G
H
I
J
K
cretaceous
paleocene
eocene
oligocene
miocene
pl
p
110
100
90
80
70
60
50
40
30
20
10
0

Chapter 3: Molecular Phylogenetics of of the Yellow-flowered flaxes, with Extended Sampling from *Linum* section *Linopsis* (Linaceae)

ABSTRACT

The phylogenetic relationships of *Linum* sect. *Linopsis* sensu Rogers are examined using DNA sequences from 70 of the 94 species in the group, and 26 species representing the other four sections of *Linum* and the four currently-recognized segregate genera, *Cliococca*, *Hesperolinon*, *Radiola*, and *Sclerolinon*. Separate and combined analyses of the nuclear (ITS) and chloroplast (*matK*, *trnK* 3' intron, *ndhF*, *trnL-F* intron and spacer) data show that section *Linopsis* is paraphyletic given the current generic circumscriptions, and that its members are divided among five geographically distinct lineages which collectively are sister to *Radiola linoides*. The Northern Hemisphere Old World species of section *Linopsis*, along with sampled species of *Linum* sections *Cathartolinum* and *Syllinum*, appear either as a sister clade of, or basal paraphyletic grade to, a well-supported South African and New World lineage. The South African and South American species of section *Linopsis* are each well-supported monophyletic lineages, with the South American segregate *Cliococca* associated with South American *Linum*. The North American segregates *Hesperolinon* and *Sclerolinon* appear to be associated with some endemic Mexican species of *Linum*, while the remaining North American species comprise a large clade that may be sister to the South American lineage. Some preciously circumscribed infrasectional taxa of section *Linopsis* are found to be well supported monophyletic groups: subsections *Dichrolinum*, *Halolinum*, and *Rigida*, and subsection *Linopsis* ser. *Virginiana*. We show that several of the characters generally used in *Linum* taxonomy are evolutionarily labile, but one feature, reduction of capsule dehiscence to produce a five-sectioned fruit, may be a unique morphological

synapomorphy for a lineage of North American flaxes (section *Linopsis* subsect. *Rigida* ser. *Rigida*).

INTRODUCTION

In the genus *Linum* L., section *Linopsis* (Rchb.) Engelm. is the largest and most widespread of the five commonly recognized sections, with approximately 93 species distributed in Eurasia, Africa, and the Americas. The section includes annual and perennial species, most with pentamerous yellow flowers (pink or white in some species) with free petals and gland-fringed sepals (Rogers 1982). As in the other sections of *Linum*, the fruits of section *Linopsis* are dehiscent capsules composed of (usually) five carpels. Leaf arrangement, chromosome number, style and stigma morphology, capsule dehiscence pattern, pollen morphology, and the occurrence of stipular glands are features that vary among (and sometimes within) the species of section *Linopsis.*

Some sections of *Linum* are easily recognized by their distinctive morphological features. The species of section *Dasylinum* (Planch.) Juz., for instance, are known for their prominent pubescence, while those of section *Syllinum* Griseb. are distinguished by coherent petals and decurrent leaf bases. Section *Linopsis*, however, lacks any such obvious, diagnostic morphological characteristics. As a result, and due to the broad morphological variation and geographic distribution the section encompasses, the taxonomic concepts applied to these yellow-flowered flaxes have been particularly labile. Over the last 170 years, a shifting array of sections, subgenera, series, and segregate genera have been proposed in attempts to organize these species into a meaningful hierarchy (Reichenbach 1837, Planchon 1847, 1848, Engelmann 1852, Bentham 1862, Gray 1865, Reiche 1894, Small 1907, Winkler 1931).

Most recently, Rogers and colleagues produced taxonomic revisions of the yellow-flowered flaxes of North America (Rogers 1963, 1968), South America (Mildner 1971, Mildner and Rogers 1978), and southern Africa (Rogers 1981a and 1981b). These works led to a revised infrasectional classification of species in section *Linopsis* (detailed in Rogers 1982 and 1984), built on the earlier systems of Planchon (1847, 1848) and Winkler (1931). Rogers' classification recognized five subsections and several sub-subsectional series within section *Linopsis*, with the characteristics and membership summarized in Table 3.1. Species sharing suites of similar characteristics were grouped together in his classification, yet few of the infrasectional taxa exhibit any unique, diagnostic features. Due to the continuous nature of variation in many characters, and the presence of species interpreted to be of "intermediate" or "transitional" morphology, Rogers maintained *Linopsis* as a section of *Linum*, preserved the most distinctive variants as valid segregate genera (*Cliococca* Bab., *Hesperolinon* (A. Gray) Small, *Sclerolinon* Rogers), and left *L. catharticum* L. as the sole species of *Linum* sect. *Cathartolinum* (Rchb.) Griseb. Some authors, including Small (1907), Winkler (1931), and Diederichsen and Richards (2003), have embraced more expansive concepts of *Cathartolinum* at various ranks, which included most of the North American species placed by Rogers in section *Linopsis*. Others have proposed additional North American yellow-flowered segregate genera (e.g. *Nezera* Raf., *Mesynium* Raf., *Mesyniopsis* W.A. Weber), but these have been only sporadically accepted (Löve 1982, Weber 1984).

Based on the assumption that the Mediterranean region was the “ancestral area” for *Linum*, and that species found there would thus exhibit “ancestral” character states, Rogers proposed an hypothesis of evolutionary relationships in section *Linopsis* (Rogers 1982 Fig. 1, redrawn here in Fig. 3.1). The subsections of section *Linopsis* were depicted as originating from an Old World ancestor (the “ancestral type”), presumed to be a perennial, heterostylous species with free styles, incomplete septa, and tricolpate pollen. Rogers’ subsection *Linopsis* includes species with this same set of ancestral features (except heterostyly, which Rogers assumed had been evolutionarily “lost” in most species). The other subsections and series of section *Linopsis* were recognized based on the occurrence of “derived” character states, such as fused styles (as in the single species of series *Mysorense*), unusual chromosome numbers (n=13 in the three species of series *Neo-Mexicana*, for instance), and distinctive corolla pigmentation (as in the white or pinkish flowers of subsection *Dichrolinum*). The New World subsection *Rigida*, with fused styles, multiporate pollen, and, generally, complete septa, was considered the most ”advanced” subsection, exhibiting the greates number of “derived” character states. Rogers’ classification and depiction of relationships within the section thus predict that neither subsection nor series *Linopsis* are monophyletic, by showing other subsections and series arising from different points within them. Subsections or series that are characterized by derived states, such as subsection *Rigida*, might be expected to be monophyletic lineages.

The unique morphology of the South American segregate *Cliococca* left its evolutionary origins mysterious (Rogers and Mildner 1971) until McDill et al. (2009)

showed its single species, *C. selaginoides* (Lam.) C. M. Rogers, to be sister to the four South American species of *Linum* sect. *Linopsis* sampled in their analyses. While several features of *Cliococca*, such as its rhizomatous habit, are not found in *Linum*, it is reported to share the same chromosome number (n=18) reported from South American *Linum* (Rogers and Mildner 1971) and from many North American species (Rogers 1984).

McDill et al. (2009) also found the North American segregates, *Hesperolinon* and *Sclerolinon*, to be sister to each other, and closely related to New World *Linum* sect. *Linopsis*. The similarities and possible close relationship of *Hesperolinon* and *Sclerolinon* were noted by Gray, who placed these species together in *Linum* sect. *Hesperolinon* (Gray 1865). Both genera exhibit a reduction in carpel number relative to five-carpellate *Linum*, and are annual species of western North America (whereas most North American *Linum* are perennials occurring east of the Rocky Mountains). Rogers (1975) hypothesized the relationship of *Hesperolinon* to the North American series *Neo-Mexicana* based on pollen and floral morphology. Xavier (1967) also noted similarities in the pollen morphology of *Hesperolinon*, *Sclerolinon*, and the members of series *Neo-Mexicana*. In their preliminary investigation of the *Linum* phylogeny, McDill et al. (2009) included one member of series *Neo-Mexicana*, *L. kingii*, which did not appear as closely related to *Hesperolinon* or *Sclerolinon*. The origins of these segregates may lie among the previously unsampled species North American *Linum* sect. *Linopsis*. Of particular interest in this matter may be certain endemic Mexican species of *Linum*, such as *L. schiedeanum* Schltdl & Cham. and *L. mexicanum* Kunth, with basal whorled leaves that recall those observed in some *Hesperolinon*. Most other North American species of *Linum* have entirely alternate leaves (Rogers 1975).

The investigation of the molecular phylogeny of the temperate Linaceae by McDill et al. (2009) revealed that members of *Linum* sect. *Linopsis* are intermingled with those of two Old World sections of *Linum* (*Cathartolinum* and *Syllinum*), as well as the three segregate genera. By finding *Linum* and its largest section to be non-monophyletic, McDill et al. (2009) revealed the potential need for a revised taxonomy of *Linum* and its sections and segregates, but that study left many questions unanswered due to limited taxon sampling. Their analyses showed that New World and South African linums are probably derived from Eurasian ancestry, supporting Rogers basic assumptions of the origin of section *Linopsis* and potentially his polarization of character evolution. However, since the vast majority of New World and African taxa were not sampled, it remains to be seen whether any of Rogers' subsectional taxa, or any alternative groupings proposed by previous workers for species of section *Linopsis*, are monophyletic.

In this study, using greatly expanded sampling of African and American species of *Linum* sect. *Linopsis*, we further explore the relationships among sections *Linopsis*, *Cathartolinum*, and *Syllinum*, and the three segregate genera and assess the monophyly of the subsections and series of section *Linopsis* proposed by Rogers (1982, 1984). We also examine the evolution of several morphological characters used by Rogers and others as indicators of relationships to determine character polarity and evaluate the utility of these characters as a basis for classification or as synapomorphies of various lineages. Finally, our phylogenetic hypotheses will provide a context for testing theories about the biogeographic history of this diverse, wide-spread lineage (Chapter 5).

MATERIALS AND METHODS

Taxon Sampling —As a basis for sampling from *Linum* sect. *Linopsis*, we accepted the species and taxonomic groupings recognized by C.M. Rogers and R. Mildner in their treatments of *Linum* and its segregate genera in North America (Rogers 1984), South America (Rogers and Mildner 1971, Mildner and Rogers 1978), and Africa (Rogers 1981a, 1981b). Seventy (indicated by asterisks in Table 3.1) of the approximately 94 species of section *Linopsis* (including one undescribed species) are represented in our analyses. Members of *Linum* sects. *Cathartolinum* (1 species sampled out of 1 currently recognized) and *Syllinum* (5/37) were selected for inclusion, along with representative samples of the segregate genera *Cliococca* (1/1)*, Hesperolinon* (4/13)*, Sclerolinon* (1/1)*,* and *Radiola* (1/1), all of which were found to be associated with section *Linopsis* by McDill et al. (2009). Representative species from the blue-flowered sections of *Linum* (12/63) and the southeast Asian genus *Reinwardtia* (1/2) are used as outgroups for the chloroplast (CPL) data analyses. The 136 DNA accessions, representing 95 different species of yellow-flowered *Linum*, segregate genera, and outgroups included in this study are listed in Appendix B along with voucher specimen information for each accession and morphological characters states scored for each species.

DNA Extraction, PCR, and Sequencing — DNA extractions utilized leaves either collected fresh and silica-dried, or judiciously garnered with permission from existing herbarium specimens. Extractions were performed using the modified Doyle and Doyle CTAB protocol (Loockerman and Jansen 1996). Between 2 and 6 microliters of a 1:10 dilution (in TE) of each extract were used as template in PCR reactions. Sequences from four regions of the chloroplast genome were utilized in this study: a portion of the *ndhF* gene, the *trnL-F* intron and spacer, the *trnK* 3' intron, a portion of the *matK* gene. From the nuclear genome, the ribosomal ITS was sequenced. Primers used for amplification and sequencing of the *trnL-F* regions, *trnK* 3' intron, and *ndhF* are as reported in McDill et al. (2009). Primers used to amplify *matK* for this study are provided in Table 3.2. ITS primers used are given in Simpson et al. (2004). For each PCR, a "master mix" was assembled that contained (per reaction): 2.5µL 10X Triton-X reaction buffer, 200 µM dNTPs, 10pM each primer, 2-3 µL 25 mM $MgCl_2$, and *Taq* polymerase, in a total volume of 25µL. As in McDill et al. (2009), BSA (3µL of 3.3% w/v per reaction, Savolainen et al. 2000) was used to enhance or obtain amplification of some regions from some samples as necessary. The thermal cycling program for PCR consisted of the following steps: initial denaturation 95°C/4 min followed by 34 cycles with 95°C/30 sec denaturation , 50°C/30 sec annealing , and 72°C/30 sec extension . A final extension step of 6 min at 72°C was included to finish synthesizing any incomplete products. PCR products were visualized by electrophoresis on 1.5% agarose gels. An EXO-SAP protocol based on Werle et al. (1994) was used to eliminate unincorporated primers and nucleotides prior to sequencing. PCR products were sequenced with forward and reverse dye terminator reactions using the amplification primers for each marker (internal primers were also employed for sequencing of *matK*), at The University of Texas at Austin's Institute for Cell and Molecular Biology Core Facility.

Sequencher 4.1.2 or 4.5 (GeneCodes Corp. 2005) were used to assemble and edit forward and reverse sequence reads. Alignments of *matK*, *ndhF*, and *the trnK* 3' intron were produced manually in MacClade 4.08 (Maddison and Maddison 2005), while *trnL-F* and ITS sequences were aligned using MUSCLE (Edgar 2004), followed by manual adjustment in MacClade. Areas of uncertain or ambiguous alignment were excluded from analyses; gaps were treated as missing data.

Phylogenetic Analyses —Prior to analysis, an appropriate substitution model was determined for each marker using the Akaike Information Criteria (AIC) implemented in Modeltest 3.7 (Posada and Crandall 1998), so that the appropriate model types could be applied during the analyses. Maximum likelihood (ML) and Bayesian analyses were subsequently performed on three data matrices: the combined chloroplast (CPL) matrix, the ITS matrix, and the combined CPL+ITS matrix.

Maximum-likelihood analyses were conducted with GARLI v. 0.96b (Zwickl 2006), with the appropriate substitution model type (as determined by ModelTest) implemented but specific parameter values left to be optimized by GARLI. Since this version of GARLI does not allow data partitioning, the model used for the CPL and combined CPL+ITS analyses applied a single GTR+G+I model to the entire matrix. All settings in GARLI were left at their default values. One-hundred GARLI search replicates were executed for each matrix, to assess the occurrence of local optima. Nonparametric ML bootstrap values for each matrix were determined from 500 bootstrap replicates performed with GARLI, with one search replicate per bootstrap replicate.

For Bayesian analyses, MrBayes v.3.1.2 (Huelsenbeck and Ronquist 2001) was used. Data matrices consisting of combined genomic regions (i.e., the CPL matrix and the CPL+ITS matrix) were partitioned, and the appropriate form of substitution model (but not the specific estimated model parameter values themselves) were applied for each data subset (region). Prior probability distributions on all parameters were kept at default values, and all parameters except for tree topology and branch lengths were unlinked between partitions. Two independent analyses were run simultaneously (nruns=2), with the built-in convergence diagnostic (average standard deviation of split frequencies) assuming a relative burn-in of 25%. Analyses were run for a minimum of 4 million MCMC generations (sampling rate = 0.01), at which point they were stopped if the convergence diagnostic had dropped to 0.01 or lower. If the two runs had not converged, the analysis was continued in two-million-generation increments until convergence to the desired level was obtained.

Analysis of ITS — Due to the potential for sequencing paralogous and pseudogenic copies of the nuclear ribosomal repeat (Feliner and Rosselló 2007), ITS PCR products for most samples were cloned using TOPO-TA cloning kits (Invitrogen). Multiple clones from each cloned sample were sequenced when possible (using the M13F and R vector primers included with the kit). Sequences exhibiting one or more changes within certain regions of the 5.8S ribosomal DNA known to be stringently conserved in angiosperms (Harpke and Paterson 2008) were designated as pseudogenes. A preliminary ML phylogenetic analysis of all ITS sequences (using GARLI as described above) was performed to identify putative paralogous sequences, designated as any non-pseudogene ITS sequences from a single DNA sample which appear in different, well-supported clades in the ML bootstrap tree). A reduced ITS matrix was produced for subsequent ML and Bayesian analysis (as described above) by removing pseudogene and extraneous clone sequences. For samples with ITS clones determined not to represent multiple paralogous copies, a single clone sequence was chosen for inclusion in subsequent analyses. Any DNA sample that exhibited apparent paralogous sequences was represented in the subsequent ML and Bayesian analyses of the reduced ITS matrix by sequences of each ITS "type" found. In the combined CPL+ITS analysis, samples that exhibited putative paralogous ITS sequences are represented by their chloroplast marker sequences alone (with ITS coded as missing data).

Analysis of Character Polarity and Evolution — To examine character evolution and assess whether any morphological character states might characterize molecular lineages revealed by the foregoing analyses, states for selected characters used in Rogers' classification were mapped onto the best tree topology resulting from the combined data ML analysis using MPRs (Most Parsimonious Reconstructions) mode in Mesquite v. 2.7 (Maddison and Maddison 2009). Character states scored for each species are provided in Appendix A.

RESULTS

Data matrix characteristics and statistics for each marker are provided in Table 3.3.

Missing Data —The following sequences were not obtained due to chronic amplification failures [note: *Linum* species listed here are members of section *Linopsis* unless otherwise noted]. Numbers associated with species names are lab accession numbers for DNA extracts, and correspond to voucher specimens listed in Appendix A. ***matK*****:** *L. heterostylum* 62, *L. thunbergii* 067, *L. rzedowskii* 165 (section *Linum*). ***trnK* 3' intron:** *L. schiedeanum* 9, *C. selaginoides* 49, 206, 220, *L. littorale* 89, *L. oligophyllum* 91, LPB2, *L. cremnophyllum* 187*, L. brevifolium* 193, *L. prostratum* 194, *L. chamissonis* 195*, L. erigeroides* 196*, L. carneum* 200, *L. macraei* 210, *L. chamissonis* 215, *L. scoparium* 219, *L. burkartii* 221, *L. hudsonioides* 244, *L. carteri* 266, *L. aethiopicum* SA12. ***ndhF*****:** *L quadrifolium* 258. ***trnL-F*** **intron and spacer:** L. *berlandieri* 27, *L. hudsonioides* 032, 244, *L. erigeroides* 196, *L. intercursum* 401. **ITS:** *L. oligophyllum* LPB2, *L. rigidum* 400, *L. berlandieri* A1, *L. subteres* 302, *L. berlandieri* 241, *L. aristatum* 233; no ITS sequences were included from blue-flowered linums or *Reinwardtia indica*. Sequence alignments for the chloroplast and ITS data as analyzed in these analyses are presented in Appendices C and D, respectively.

Chloroplast Phylogeny — The phylogeny of combined chloroplast marker sequences (136 individuals representing 95 species, including 12 blue-flowered linums and the rooting outgroup *Reinwardtia indica*) are shown in Fig. 3.2 (ML phylogram) and

Figs. 3.3 and 3.4 (Bayesian majority-rule consensus with ML bootstrap (BS) and posterior probability (PP) values).

The blue-flowered linums are found in a well-supported monophyletic group, with the two members of *Linum* sect. *Dasylinum* sister to sect. *Linum* (Fig. 3.3). Sampled species of yellow-flowered *Linum* and the segregate genera are shown to form a well-supported monophyletic group sister to *Radiola* (Fig. 3.2). Several well-supported lineages of Old World yellow-flowered linums are evident, but the branching order among them is not well supported (Figs. 3.3, 3.4). *Linum* sect. *Syllinum* is shown as monophyletic, but section *Linopsis* is not. Section *Linopsis* subsect. *Halolinum* appears as sister to section *Syllinum*. *Linopsis* subsect. *Dichrolinum* is shown as sister to the Old World Northern Hemisphere (OWNH) members of subsection *Linopsis* ser. *Linopsis* (Figs. 3.2, 3.3). The position of *Linum* sect. *Cathartolinum* is not well supported. In the ML topology, *L. catharticum* appears sister to a clade comprised of *Linum* sect. *Linopsis* (excluding subsection *Halolinum*) and the segregate genera, but that relationship does not obtain significant bootstrap support (Fig. 3.2). In the Bayesian consensus topology (Fig. 3.3), *L. catharticum* appears as sister to the South African and New World clade of section *Linopsis* and the segregate genera.

The lineage containing the South African and New World Yellow flowered linums is well supported, with the New World group sister to the clade of South African species (Fig. 3.3). Relationships within the South African clade are not well resolved, although some groupings are well supported.

The New World taxa of section *Linopsis* and the segregate genera are divided among four moderately-to-well supported clades (Fig 3.4): (1) two species (*L. kingii* and *L. neomexicanum*) of subsect. *Linopsis* ser. *Neo-Mexicana*, (2) the six sampled species of subsect. *Linopsis* ser. *Virginiana*, (3) a clade including subsect. *Rigida, L. pringlei* (of subsection *Linopsis* ser. *Neo-Mexicana*), and some North American members of subsect. *Linopsis* ser. *Linopsis*, and (4) a clade including the remainder of North and South American subsect. *Linopsis* ser. *Linopsis* and the segregate genera *Cliococca, Hesperolinon*, and *Sclerolinon*. Relationships among these four New World lineages are not resolved with significant levels of bootstrap or posterior-probability support.

Subsection *Rigida* is a well-supported lineage, as is the genus *Hesperolinon*, which is shown as sister to *Sclerolinon*. The South American taxa are a strongly supported lineage, with *Cliococca selaginoides* sister to South American linums. Many of the species of North American subsection *Linopsis* ser. *Linopsis* are divided among three well-supported clades, not recognized formally in Rogers' classification, but henceforth referred to as the *Linum rupestre* group (clade B in Fig. 3.4, consisting of *L. arenicola*, *L. flagellare*, *L. rupestre*, and *L. bahamense*), the *Linum schiedeanum* group (clade A in Fig. 3.4, *L. schiedeanum*, *L. cruciata*, *L. lasiocarpum*, *L. tenellum*, and *L. nelsonii*), and the *Linum mexicanum* group (clade C in Fig. 3.4, *L. mexicanum*, *L. guatemalense*, and *L. orizabae*). The *Linum rupestre* and *Linum schiedeanum* groups both appear related to subsection *Rigida*, while the *Linum mexicanum* group is associated with the South American linums and the segregate genera.

ITS Phylogeny— In the analysis of ITS clones, 460 cloned and direct sequences were included for the sampled taxa of the yellow-flowered lineage (Figs. 3.5-3.8). Only 36 sequences were definitively identified as pseudogenes based on the criteria of Harpke and Paterson (2008) and subsequently excluded. Cloned sequences from most samples formed exclusive, well-supported clades, from each of which a single non-pseudogene copy was selected for inclusion in further analyses. Six species exhibited apparent paralogous copies found in different moderately or well-supported clades: *L. adustum* SA8, L *gracile* SA5, *L. westii* 269, *L. mexicanum* 37, *L. nelsonii* F5, and *L. guatemalense* (the first two species listed are South African, the rest North American).

Due to the variable nature of the ITS, and resulting difficulty of aligning sequences from yellow-flowered taxa with blue-flowered linums and *Reinwardtia*, the ITS-inclusive analyses utilize sequences from members of the yellow-flowered clade only, with *Radiola* used as the outgroup for tree rooting purposes. *Radiola linoides* was found as sister to the yellow-flowered clade by McDill et al. (2009), and in the CPL phylogeny presented here (Fig 3.3).

Results from the ML and Bayesian analyses of the reduced ITS matrix (Figs. 3.9 and 3.10, respectively) reveal many of the same well-supported lineages as the CPL analyses, but also lack strongly-supported resolution of relationships among those lineages. There are however several notable divergences from the CPL phylogeny. The position of section *Cathartolinum* (sister to section *Linopsis* subsect. *Halolinum*, Fig. 3.10) differs from that found in the CPL analyses (where it was sister to the New World and South African clade. In the ITS topology, all of the Old World Northern Hemisphere yellow-flowered linums comprise a moderately-supported clade sister to the African-New World clade. The relationship of South African linums to the New World taxa is not well resolved in the ITS analysis. The *Linum schiedeanum* group is not monophyletic in the ITS analyses: two of its species are a sister clade to *Linopsis* ser. *Virginiana* (PP=96%, BS <50%), while the remainder form a clade (PP=100%, BS<50%) whose position within the New World lineage is unresolved (Fig. 3.10, group A, the *L. schiedeanum* group, shown in two parts). Section *Linopsis* subsect. *Rigida*, monophyletic in the CPL results, is non-monophyletic in the ITS topologies (Fig. 3.10) due to the placement of *Linum pringlei* (of subsection *Linopsis*) as sister to *L. sulcatum* (86% PP, 89% BS).

Putative paralogous sequences from the South African species *Linum adustum* (indicated by black stars in Figs. 3.9 and 3.10) and *L. gracile* (black dots) are dispersed among two clades, one with sequences from two other accessions of *L. gracile* plus *L. heterostylum*, and the other consisting of sequences from *L. aethiopicum*. Sequences isolated from the Mexican species *Linum nelsonii* (triangles, Fig. 3.10) appear variously related to those from two other Mexican taxa, *L. schiedeanum* and *L. cruciata*. Putative paralogs from *L. mexicanum* (squares) and *L. guatemalense* (diamonds) are confined within the *Linum mexicanum* group of subsection *Linopsis* (group C, Figs. 3.9 and 3.10), which is shown as sister to the *Hesperolinon*+*Sclerolinon* lineage (98% PP, <50% BS). Paralogs from *L. westii* (asterisks in Fig. 3.10) are widely separated in the phylogeny: two fall among species of series *Virginiana* (which agrees with the chloroplast marker placement of *L. westii*, and the classification of Rogers), while the third is nested within subsection *Rigida* (sister to a sequence from *Linum aristatum*).

Combined Data Phylogeny — ML and Bayesian analyses of the combined CPL+ITS data matrix (paralogous ITS sequences excluded) are presented in Figs. 3.11 and 3.12, respectively. These results mimic those from the individual CPL and ITS analyses described above, featuring poorly supported relationships within and among a few well-supported lineages. *Linum catharticum* is moderately supported as sister to a clade containing the other Old World Northern Hemisphere species. The South African species of *Linopsis* form a well-supported clade, again sister to the New World taxa. A clade containing *Hesperolinon*, *Sclerolinon*, and the *Linum mexicanum* group of subsection *Linopsis* ser. *Linopsis* receives tenuous support as the most basal New World lineage. The clade of South American *Linopsis*, *Cliococca*, and the Mexican species *L. longipes*, is very weakly supported as monophyletic and sister to a large North American clade. Within that group, the South American taxa are well supported as monophyletic, with *Cliococca* nested among the linums (sister to *L. burkartii*, as in the ITS analyses). Series *Virginiana* is well supported, as is series *Neo-Mexicana* (excluding *L. pringlei*, which appears as sister to the *Linum rupestre* group).

Character Mapping — Fruit segmentation, pollen morphology, extent of false septa, and stylar fusion are mapped on the combined data ML topology in Fig. 3.13.

DISCUSSION

While the relationships among the lineages of yellow-flowered linums, particularly among the New World species, remain somewhat poorly resolved or poorly supported, several major conclusions are possible.

Relationships among the "yellow-flowered" sections of *Linum* — Three sections of *Linum* fall into what has been called the yellow-flowered clade (McDill et al. 2009): *Linopsis, Syllinum*, and *Cathartolinum*. Section *Linopsis* is clearly not monophyletic as circumscribed by Rogers (1982), with *Linum* sects. *Syllinum* and *Cathartolinum*, as well as the segregate genera *Cliococca*, *Hesperolinon*, and *Sclerolinon* nested within it. This reiterates the findings of McDill et al. (2009), but with far more extensive taxonomic sampling from section *Linopsis*. *Syllinum*, a Eurasian section well-defined by morphological features including coherent petals and decurrent leaves, is consistently found to be monophyletic and sister to the Mediterranean subsection *Halolinum* of section *Linopsis*, as found by McDill et al. (2009). The relationships of section *Cathartolinum*, with its single species, *Linum catharticum*, are unclear. As found by McDill et al. (2009), chloroplast and nuclear markers appear to provide conflicting signals, with the CPL indicating *L. catharticum* as sister to the African+New World lineage, and the ITS showing *L. catharticum* nested among Eurasian taxa. While the placement of *L. catharticum* in the ITS topology, nested within the Old World Northern Hemisphere (OWNH) clade, is moderately-to-well-supported by bootstrap values and posterior probabilities (Fig. 3.10), the branching order among the Old World Northern Hemisphere lineages in the CPL phylogeny (Fig. 3.3) is not well supported. In the combined analysis, *L. catharticum* assumes a "compromise" position, sister to an Old World clade. The possible taxonomic implications of the placement of *L. catharticum* are discussed more extensively by McDill et al. (2009).

Relationships among the members of *Linum* section *Linopsis* — As noted above, section *Linopsis* as circumscribed by Rogers is not monophyletic, and its species are divided among several major lineages. Some of these lineages correspond to Rogers' subsections or series. Among the Old World lineages of *Linum*, subsections *Halolinum* and *Dichrolinum* appear to be well-supported groups in the molecular phylogenies, and are well-defined by other characters: *Halolinum* with a unique base chromosome number (x=10), and *Dichrolinum* with white or purplish flowers (Rogers 1982).

In the New World, subsection *Rigida* also appears to be a well-defined and supported lineage, exhibiting several morphological features (such as united styles, multiporate pollen, 5-segmented capsules, and n=15) designated by Rogers as "derived" states (Rogers 1982). *Linum sulcatum* (subsection *Rigida* ser. *Sulcata*), was considered by Rogers (1982) to be "intermediate" between subsection *Rigida* ser. *Rigida* and members of subsection *Linopsis* due to its united styles (a feature of series *Rigida*) and 10-segmented capsules (a feature of subsection *Linopsis*). In the combined data analyses, *Linum sulcatum* appears as sister to series *Rigida*, in what could be considered an "intermediate" position between that series and the members of subsection *Linopsis* (Fig. 3.12), as Rogers might have predicted (the ITS data indicate a different, anomalous placement of *L. sulcatum*, sister to *L. pringlei*, with moderate support (pp = 86%, ML bootstrap 89%).

Series *Virginiana* (of subsection *Linopsis*) is also consistently found to be monophyletic and well-supported, with six of its seven species sampled. This group of herbaceous perennials is confined to eastern North America. Some of the species of series *Virginiana* exhibit derived characters, such as complete septa and colporate pollen.

Rogers' subsection *Linopsis* is not monophyletic, as subsections *Dichrolinum*, *Halolinum*, and *Rigida* are nested within it. The non-monophyly of section and subsection *Linopsis* is not surprising, since species were essentially assigned to these groups based their *lack* of derived features, rather than the presence of synapomorphies. The limited power of plesiomorphic character states to predict relationships, and their propensity to define paraphyletic groups when used for classification purposes, are well known (e.g. Donoghue and Cantino 1988). That said, the non-monophyly of section and subsection *Linopsis* was also essentially predicted by C.M. Rogers; the evolutionary scenario he proposed indicates a nested series of relationships with different subsections and series arising from different points within subsection *Linopsis* (see Fig. 3.1 and Rogers 1982, Rogers 1969). The classification of *Linum* section *Linopsis* proposed by Rogers (Table 3.1) was thus not designed to represent hypothetical monophyletic lineages as infrasectional taxa, but rather as a way of indicating morphological similarity. Species were organized into subsections and series based on shared suites of features, and evolutionary relationships described verbally or graphically (Rogers 1969, 1982), with more "advanced" groups arising from within paraphyletic ancestral taxa.

Our analyses suggest that several species of subsection *Linopsis* ser. *Linopsis* are members of three lineages that have not been formally recognized in classifications: the

"*Linum schiedeanum* group" (*L. schiedeanum*, *L. cruciata*, *L. lasiocarpum*, *L. tenellum*, and *L. nelsonii*), the "*Linum rupestre* group" (*L. rupestre*, *L. bahamense*, *L. flagellare*, and *L. arenicola*), and the "*Linum mexicanum* group" (*L. mexicanum*, *L. guatemalense*, *L. orizabae*).

The *Linum schiedeanum* group is well supported by chloroplast data and combined analysis (group A, Figs. 3.4, 3.12), but not the ITS alone (Fig. 3.10). This group is characterized by whorled leaves, an unique feature among North American linums but also found in some South American and South African species. The species of the *Linum schiedeanum group* are distributed from the Guadalupe mountains of Western Texas south to Veracruz.

The *Linum rupestre* group (clade B, Figs. 3.4, 3.9, 3.10, 3.11, 3.12) is characterized by a perennial habit with many branches originating from a woody taproot or caudex, and most of the species occur in calcareous substrates (Rogers 1984). *L. rupestre* is found on limestone outcrops from central Texas to central Mexico. *Linum bahamense* and *L. arenicola* are found in similarly calcareous soils in the Bahamas and Florida, respectively. *Linum flagellare*, however, is occurs in sandy soils in Coahuila, Zacatecas, and Durango (Mexico).

The three species of the *Linum mexicanum* group (clade C, Figs. 3.4, 3.9, 3.10, 3.11, 3.12) are native to central and southern Mexico. Similarities among the three species of this group were noted by Rogers (1984), who characterizes them as distinctive "coarse" perennial herbs or subshrubs. Leaves in these species are opposite or whorled at the base of the plant, transitioning to alternate toward the inflorescence. The leaf arrangement transition from whorled or opposite at the base to alternate in the upper portions of the plant is also observed in some *Hesperolinon* and in *Sclerolinon*, which may share common ancestry with the *L. mexicanum* group (Fig. 3.12).

An anomalous result that contradicts Rogers classification in spite of the presence of a "derived" feature is the non-monophyly of series *Neo-Mexicana* (of subsection *Linopsis*), whose three species are reportedly characterized by a unique base chromosome number of x=13 (Rogers 1984). *Linum* kingii and *L. neomexicanum* (both n=13) are known from high elevation mountain ranges and "sky islands" from Colorado to Nevada and south to New Mexico, while the tetrapoloid *L. pringlei* (n=26) occurs in the Sierra Madre of the Mexican states Sonora and Chihuahua. *Linum kingii* and *L. neomexicanum* appear to be sister species our results, but the affinities of *L. pringlei* are unclear. The chloroplast phylogeny (Fig. 3.2) and combined analysis (Fig. 3.12) show *L. pringlei* sister to the *L. rupestre* group of species, while ITS places it with subsection *Rigida*. Unfortunately *L. pringlei* ITS was not cloned, so we do not know whether the direct sequence represents a paralogous sequence copy, which could explain the disagreement between the ITS and CPL placements for this taxon. It may also be that the n=26 chromosome number of *L. pringlei* is not a tetraploid derivative from the n=13 of *L. kingii* and *L. neomexicanum* as Rogers thought, but is derived from some other ancestral number via some combination of polyploidy and aneuploid change.

Relationships of *Cliococca*, *Hesperolinon*, and *Sclerolinon* — The expanded sampling from *Linum* sect. *Linopsis* provides a more detailed perspective on the origins and relationships of the three segregate genera and raises some additional questions.

McDill et al. (2009) found the South American segregate *Cliococca* sister to the four species of South American *Linum* sampled in their study. While the chloroplast phylogeny presented here gives the same result (*Cliococca* sister to South American *Linum*, PP=98 BS=66, Fig. 3.4), the ITS and combined analysis show *C. selaginoides* derived from within the South American *Linum* clade, and perhaps sister to *L. burkartii* (Figs. 3.10, 3.12). Though the ITS from all three accessions of *C. selaginoides* were cloned, and those clones consistently formed a monophyletic grouping sister to a clade of *L. burkartii* clones (Fig. 3.6), most South American taxa were not cloned, so the possibility of non-homologous ITS copies affecting the result can't be eliminated. While *Cliococca* is reported to share the same chromosome number as South American *Linum* species (n=18), its divergent morphology yet makes it difficult to recognize any synapomorphies it might share with other species (Rogers and Mildner 1971). Its close relationship to South American linums, though, is apparent.

As in McDill et al. (2009), the North American segregates *Hesperolinon* and *Sclerolinon* are shown to be sister to each other. Species of these genera were placed by Gray in his *Linum* sect. *Hesperolinon*, and are characterized by a reduction in carpel number from the usual five found in *Linum*, a tendency toward opposite or whorled leaves, and distributions in Western North America (most North American species of *Linum* occur east of the Rocky Mountains). Small (1907) segregated the genus *Hesperolinon*, but did not include *L. digynum*, instead placing it in the genus *Cathartolinum* along with the other North American yellow-flowered species (Small 1907). In her seminal revision of *Hesperolinon*, Sharsmith (1961) described several new

Hesperolinon species and included detailed comparisons of *Hesperolinon* to other Linoideae, but discounted the similarities of *Hesperolinon* to *Sclerolinon*, instead referring to subsection *Linopsis* ser. *Neo-Mexicana* as the closest relative of *Hesperolinon* based on features of the petal appendages and petal attachment to the staminal cup. Rogers (1975) and Xavier (1967) later cited morphological links between *Hesperolinon* and North American members of subsection *Linopsis* ser. *Linopsis*. We here find *Hesperolinon* and *Sclerolinon* to be most closely related to the *L. mexicanum* group, currently classified in subsection *Linopsis* ser. *Linopsis* (Fig 3.12).

Character Evolution — As indicators of evolutionary relationships and a basis for classification, Rogers attached particular importance to conditions of flower color, stylar fusion, heterostyly, the degree to which false septa penetrate the locules of the ovary, pollen morphology, leaf arrangement and morphology, and chromosome number (Rogers 1969, 1982). Derived features, such as the united styles and multiporate pollen that define subsection *Rigida*, appear to be good predictors of relationships in some cases, although some clades that appear in our results, like the lineage of South African linums, do not bear such easily recognizable potential synapomorphies. It appears that some of the derived states designated by Rogers (1982) have probably evolved multiple times from the ancestral conditions present in different lineages of subsection *Linopsis*. McDill et al. (2009) previously showed that heterostyly may have transitioned to homostyly multiple times in *Linum*. Evolutionary hypotheses for four additional characters — number of fruit segments, pollen morphology, development of false septa in the fruit, and stylar fusion — are presented in Fig. 3.13.

The number of segments into which the fruits of Linaceae dehisce is a product of the number of carpels and the number of sutures along which dehiscence occurs. The fruits of most *Linum* are capsules composed of five fused carpels, each carpel containing two seeds. Dehiscence of the capsule along both loculicidal and septicidal sutures results in ten, one-seeded segments in most species of *Linum*. The number of fruit segments can change due to alteration in either the number of carpels or the number of sutures that dehisce. Both processes are considered together in Fig. 3.13 A, in which the number of capsule segments is mapped onto the phylogeny. Reduction in carpel number occurs in several lineages that have been recognized as segregate genera: in *Hesperolinon* (most species with three carpels, some with two (not sampled here), *Sclerolinon* (two carpels, dehiscing along both suture types to produce four one-seeded nutlets), and *Radiola* (four carpels). The East African species *Linum keniense*, of section *Linopsis* subsect. *Keniense* (not sampled), also exhibits four carpels, and would likely represent an additional independent reduction in carpel number from the ancestral condition. In *Linopsis* subsect. *Rigida* ser. *Rigida*, the number of carpels is unchanged from the ancestral state, but the five carpels dehisce only along the loculicidal sutures, producing five capsule segments, each with two seeds (Rogers 1969). This change in dehiscence pattern (loss of dehiscence along the septicidal sutures) coupled with retention of five carpels, results in the unique five-segmented fruit of series *Rigida*. *Linum sulcatum*, the single member of subsection *Rigida* ser. *Sulcata*, retains dehiscence along both suture types, resulting in ten-segmented capsules. Loss of septicidal dehiscence also occurs in *Radiola* where, due to the co-occurrence of carpel reduction, the fruits dehisce into four segments.

Pollen grains of *Linum* are remarkably variable, exhibiting species-level variation in grain size and morphology, the size and shape of germinal pores, and in the size, shape, and morphology of exine processes (Xavier 1967, Rogers 1969, Xavier et al. 1980). The range of variation observed within *Linum* has been compared to that observed among genera in other familes, and has been cited as an indication of "overly conservative" taxonomic treatment of *Linum* (Xavier 1967). Here we consider three broad categories of gross pollen morphology, referred to as tricolpate, colporate, and porate, based on the terminology of Xavier (1967). Tricolpate pollen is the most common type in section *Linopsis*, and was considered the "ancestral type" by Rogers (1982); the pollen grains are typically triangular in polar view, with three elongate germinal pores, or colpi (occasionally 4-6 colpi are present in 77tude77en77y species). Colporate pollen bear a larger number (~12) of elongate germinal pores, while porate pollen grains possess 20 or more circular pores. Pollen morphology exhibits five changes when mapped on our optimal phylogeny (Fig. 3.13 B), with "ancestral" tricolpate pollen transitioning to colporate in subsection *Linopsis* ser. *Virginiana* and to porate in subsection *Rigida*. In the series *Virginiana* clade, colporate pollen may have evolved in the common ancestor of the group, and been subsequently lost twice, or gained independently in three species.

The "false septa" often referred to by *Linum* taxonomists are extensions of the ovary wall penetrating to some extent into each locule, dividing the locule in half. The extent of these septa in the mature capsules varies on a continuous basis in section *Linopsis*, appearing to reach "completion" (with the septum forming a membrane that completely divides the locule) in subsection *Rigida* ser. *Rigida* (all species), subsection *Linopsis* ser. *Virginiana* (in six of the seven species), subsection *Keniense* [not sampled here, but the condition was noted by Rogers (1982)], and in the segregate genera *Cliococca* and *Sclerolinon*. Complete septa may have evolved four times, with possible reversions to an incomplete state in some North American species of subsection *Linopsis* (Fig. 3.13 C).

In most species of Linaceae, the five styles are described as "free," each distinct from the others from the point of attachment at the top of the ovary. In some species, the styles are fused together for a portion of their length, branching apart at some point well above the attachment to the ovary. Stylar fusion is a hallmark of subsection *Rigida*, but also appears in several Mexican, South American, and Old World linums (Rogers 1982). Considering the occurrence of fused styles in *Linum* species worldwide, Rogers and Mildner (1976) hypothesized that this condition evolved multiple times in section *Linopsis*, and did not place too much importance on stylar fusion in classifications or hypotheses of relationships. Rafinesque, on the other hand, used stylar fusion as a basis for his segregate genus *Mesynium*, the name of which refers to the "fused middle." He placed all of the fused-style yellow-flowered species he knew of in *Mesynium*, including an African species, *M. africanum* Raf. (= *Linum africanum* L.). When mapped on the molecular phylogeny, stylar fusion exhibits as many as twelve independent gains, or four gains and seven reversions to free styles, in the most parsimonious reconstruction (Fig. 3.13 D). In light of our phylogenetic results, assignment of species to *Mesynium* based on stylar fusion would clearly result in a polyphyletic genus.

While the derived character states designated by Rogers in many cases appear to have evolved multiple times from the ancestral conditions, his characterization of subsection and series *Rigida* as the most "advanced" lineage of section *Linopsis* is borne out by our results. Only in subsection *Rigida* are derived states of multiple characters present in most species, and at least one feature, reduction to only loculicidal dehiscence, appears to be a potential unique synapomorphy for series *Rigida*. While Rogers repeatedly noted the distinctiveness of subsection *Rigida*, and remarked that it might merit recognition as a genus, the existence of "intermediate" species such as *L. sulcatum* and occurrence of many of the "derived" states in other species of *Linum* led him to maintain this group as a subsection of *Linum* sect. *Linopsis* (Rogers 1969).

CONCLUSION

The evolutionary scenario proposed by Rogers (1982) is shown to have been perhaps overly simplistic when examined in a phylogenetic framework, but his general view of character state "polarity" is essentially confirmed for a number of morphological features. However, Rogers' classification scheme for *Linum* section *Linopsis*, based primarily on overall morphological similarity, is not supported by the molecular phylogenetic results. Several of Rogers' subsections and series, those based at least in part on the presence of derived character states, such as subsection *Rigida* and subsection *Linopsis* ser. *Virginiana*, do correspond to supported clades in the molecular phylogenies. Other taxa, notably section *Linopsis*, subsection *Linopsis*, and series *Linopsis*, are paraphyletic. We find nested among the lineages of *Linum* sect. *Linopsis* several taxa generally recognized at equal or higher rank (*Linum* sects. *Cathartolinum* and *Syllinum*, the segregate genera), further illustrating the need for a revised taxonomy for this lineage and for *Linum* in general.

The *Linum Rupestre*, *L. mexicanum*, and *L. schiedeanum* species groups appear to be monophyletic, morphologically cohesive lineages that are moderately-to-well supported by our molecular data that have not been previously formally recognized in taxonomic treatments. The South American and South African species groups also appear to be distinct lineages, though morphological synapomorphies for these clades have not yet been discovered. While the phylogeny presented here does not completely resolve the evolutionary relationships among the species of *Linum* and its segregate genera, it is our hope that they will provide a basis for future rigorous comparative morphological study and taxonomic revision, and guide future phylogenetic sampling.

Table 3.1. Infrasectional classification of *Linum* sect. *Linopsis* (Rogers 1982). Species sampled for phylogenetic analyses in this study are indicated by asterisks (*).

Linum sect. *Linopsis* (Rchb.) Engelm. in A. Gray

Flowers four or five-merous, yellow (white to pink or purplish in a few spp.), petals separate, stigmas capitate or linear, sepals typically with marginal glands. Homostylous or heterostylous. Pollen tricolpate or multiporate. Approximately 94 spp.

subsection 1: *Dichrolinum* (Planch.) Rogers

Flowers five-merous, white to purplish, styles separate, stigmas capitate, Heterostylous or homostylous. Pollen tricolpate. *x*=9. 2 spp.

Mediterranean Region		
L. suffruticosum L.*	*L. tenuifolium* L. *	

subsection 2: *Halolinum* (Planch.) Rogers

Flowers five-merous yellow, styles separate, stigmas linear, false septa partial, Heterostylous or homostylous. Pollen tricolpate. *x*=10. 3 spp.

Mediterranean Region		
L. maritimum L. *	*L. tenue* Desf. *	*L. trigynum* L. *

subsection 3: *Keniense* Rogers

Flowers yellow, four-merous, styles separate, stigmas capitate, false septa complete. Homostylous. *x*=?. 1 sp

East Africa	*L. keniense* Fries

subsection 4: *Linopsis* (Rchb.) Rogers

Flowers five-merous, yellow, heterostylous or homostylous, styles separate or united, stigmas capitate, false septa partial to nearly complete, *x*=9. Approximately 70 spp.

series *Linopsis* (Rchb.) Planch.

Homostylous (two spp. possibly secondarily heterostylous), styles separate or united, false septa partial, pollen tricolpate, *x*=9. Approximately 59 spp.

Mediterranean Region	Madagascar	*L. scoparium* Griseb. *
L. strictum L. *	*L. betsiliense* Baker	*L. smithii* Mildner
East Africa	*L. emirnense* Bojer	North America
L. holstii Engler ex Wilczek *	*L. marojejyense* (Humbert) Rogers	*L. arenicola* (Small) Winkler *
L. volkensii Engl. *	South America	*L. bahamensei* Northrop *
South Africa	*L. brevifolium* St. Hil. & Naud.	*L. cruciata* Planch. *
L. acuticarpum Rogers *	*L. burkartii* Mildner *	*L. flagellare* (Small) Winkler *
L. adustum E. Mey. Ex Planch. *	*L. carneum* Urb. *	*L. guatemalense* Benth. *
L. aethiopicum Thunb. *	*L. chamissonis* Schiede *	*L. gypsogenium* Nesom
L. africanum L. *	*L. cremnophyllum* Johnst. *	*L. lasiocarpum* Rose *
L. brevistylum Rogers	*L. erigeroides* St. Hil. *	*L. longipes* Rose *
L. comptonii Rogers *	*L. filiforme* Urb.	*L. mcvaughii* Rogers
L. esterhuysenae Rogers *	*L. littorale* St. Hil. *	*L. mexicanum* HBK *
L. gracile Planch. *	*L. macraei* Nenth. *	*L. modestum* Rogers
L. heterostylum Rogers *	*L. oligophyllum* Willd. Ex Schult. *	*L. nelsonii* Rose *
L. pungens Planch.	*L. organense* Gardn.	*L. orizabae* Planch. *
L. quadrifolium L. *	*L. palustre* Gardn.	*L. rupestre* (A. Gray) Engel. *
L. thesioides Bartl. *	*L. polygaloides* Planch.	*L. scabrellum* Planch. *

L. thunbergii E. & Z. *	*L. prostratum* Domb. Ex Lam. *	*L. schiedeanum* Schlecht. & Cham. *
L. villosum Rogers *	*L. ramosissimum* Gay	*L. tenellum* Schlecht. & Cham. *
series *Mysorense* Rogers		
Homostylous, styles united basally, false septa partial, pollen tricolpate, n=30. 1spp.		
India	*L. mysorense* Heyne ex Benth.	
series *Neo-Mexicana* (Small) Rogers		
Homostylous, styles separate, false septa partial, pollen tricolpate, x=13. 3 spp.		
Western North America		
L. kingii S. Watson*	*L. neomexicanum* HBK*	*L. pringlei* S. Watson*
series *Virginiana* (Small) Rogers		
Homostylous, styles separate, false septa partial to complete, pollen tricolpate or few-porate, x=18. 7 spp.		
Eastern U.S.		
L. floridanum (Planch.) Trel. *	*L. medium* (Planch.) Britton *	*L. westii* Rogers *
L. intercursum Bicknell *	*L. striatum* Walter *	
L. macrocarpum Rogers	*L. virginianum* L. *	
subsection 5: *Rigida* (Small) Rogers		
Flowers yellow, five-merous, styles variously united, stigmas capitate, false septa partial to complete, pollen multiporate, x=15. 15 spp.		
series *Rigida* (Small) Rogers		
Styles united to above the middle, false septa complete. 15 spp.		
Central and southwestern North America		
L. alatum (Small) Winkler *	*L. compactum* A. Nelson *	*L. puberulum* (Engel.) Heller *
L. aristatum Engel. in Wisl. *	*L. elongatum* (Small)Winkler *	*L. rigidum* Pursh *
L. australe Heller *	*L. hudsonioides* Planch. *	*L. subteres* (Trel.) Winkler *
L. berlandieri Hooker *	*L. imbricatum* (Raf.) Shinners *	*L. vernale* Wooton *
L. carteri Small *	*L. lundellii* Rogers *	*Linum* sp. nov.
series *Sulcata* (Small) Rogers		
Styles united to below the middle, false septa partial. 1 spp.		
North America	*L. sulcatum* Riddel *	

Table 3.2. Primers used to amplify and sequence the *matK* gene from yellow-flowered *Linum* and outgroups.

Primer Name	Sequence (5'-3')	Taxonomic Utility
matK 1F	ACT GTA TCG CAC TAT GTA TCA	all
matK 1320R	GAT CCG CTA TAA TAA TGA GA	all
matK 595F	TGG ATA AAA GAT CCC GCT TG	Yellow-flowered taxa
matK 595R	CAA GCG GGA TCT TTT ATC CA	Yellow-flowered taxa
matK 819F	TCA GTT TCT TCT TGA GCG AAA G	Yellow-flowered taxa
matK 819R	CTT TCG CTC AAG AAG AAA CTG A	Yellow-flowered taxa
matK 819Fb	TAG CTT YYT TCT TGA GCG AAA T	Blue-flowered taxa/OG
matK 819Rb	ATT TCG CTC AAG AAR RAA GCT A	Blue-flowered taxa/OG

Table 3.3: Data matrix characteristics. NTax = number of terminal taxa, Nchar = total number of base pairs in aligned matrix. Number included = number of base pairs included in analyses (after exclusion of questionably-aligned sites). G1 = G1 statistic, determined from evaluation of one hundred thousand random trees in PAUP. Constant = # of constant characters. P.i. = number of parsimony informative characters. Model=substitution model type selected.

Matrix:	*matK*	*trnK* intron	*ndhF*	*trnL-F*	CPL Combined	ITS	CPL + ITS
NTax	135	105	132	129	136	135	122
NChar	1369	409	490	1309	3577	777	4354
Number included	1154	405	433	753	2745	624	3369
G1	-1.53	-0.69	-1.59	-1.34	-1.40	-0.51	-0.57
constant	721	257	317	615	1910	310	2509
p.i.	312	75	94	215	696	241	635
Model	GTR+Γ	F81+Γ	GTR+Γ	GTR+Γ	GTR+Γ	GTR+Γ	GTR+Γ

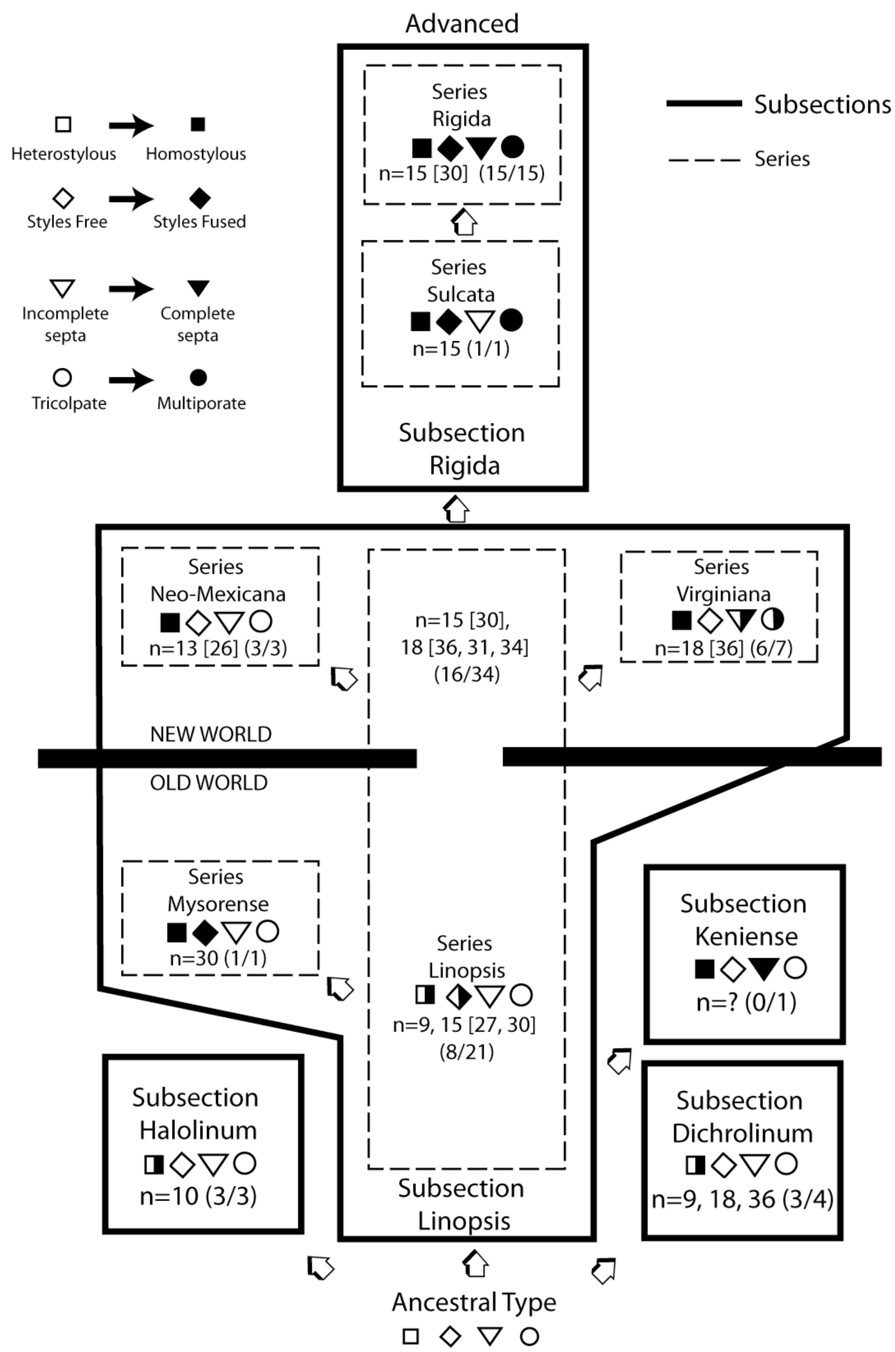

Fig. 3.1. Hypothesized evolutionary relationships among the various subgroups of *Linum* sect. *Linopsis* adapted from Rogers (1982, Fig. 1). Open shapes indicate "primitive" character states designated by Rogers, filled shapes the "derived" state.

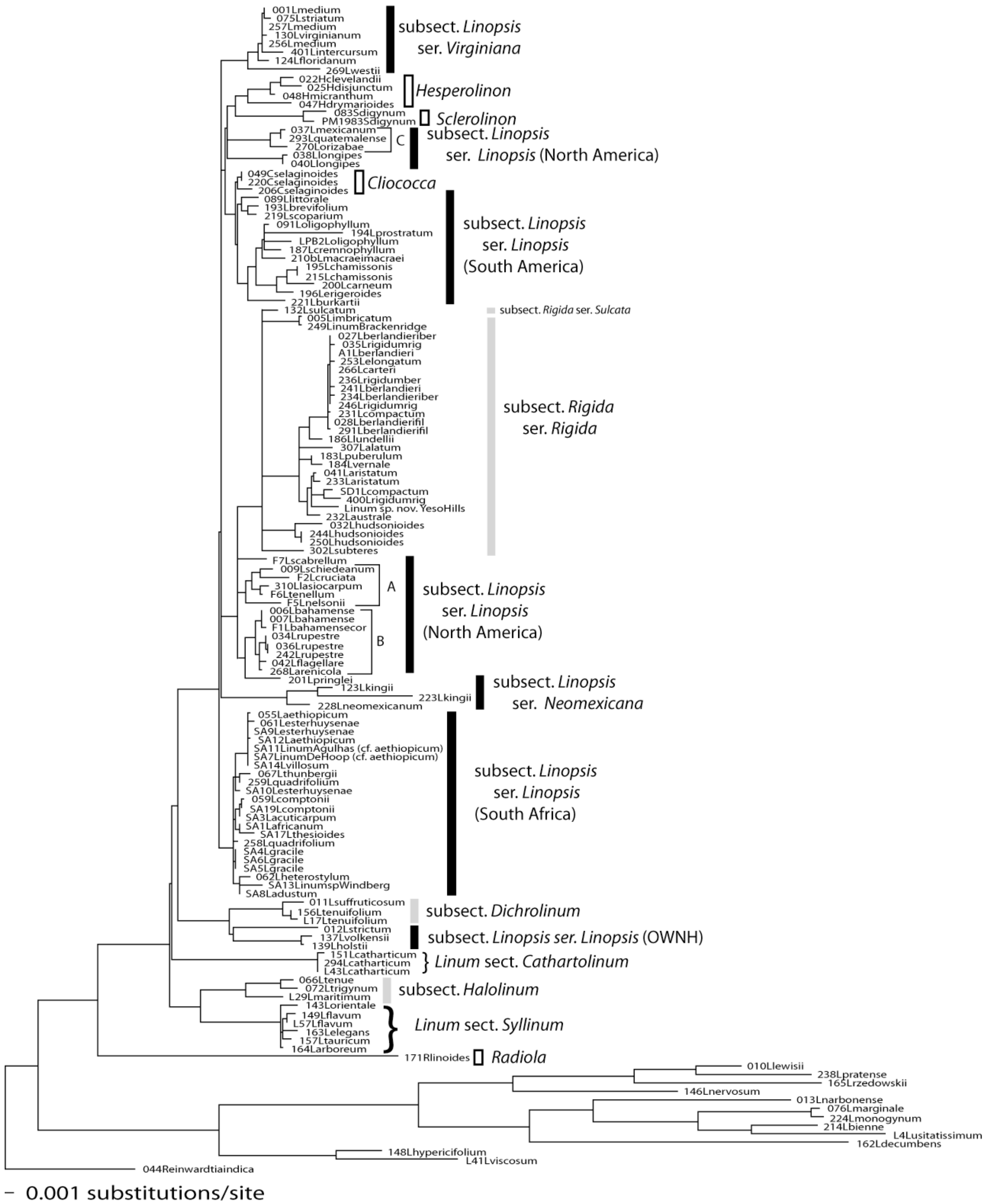

Fig. 3.2. Maximum likelihood topology for CPL matrix (-lnL=15848.70). Braces = sects. Cathartolinum and Syllinum. Shaded bars indicate the subsectional classifications (Table 3.1): Grey = sect. *Linopsis* subsects. Dichrolinum, Halolinum, and Rigida. Black = subsection *Linopsis*. Open = segregate genera. Lettered clades: A = *Linum schiedeanum* group, B = *Linum rupestre* group, C = *Linum mexicanum* group.

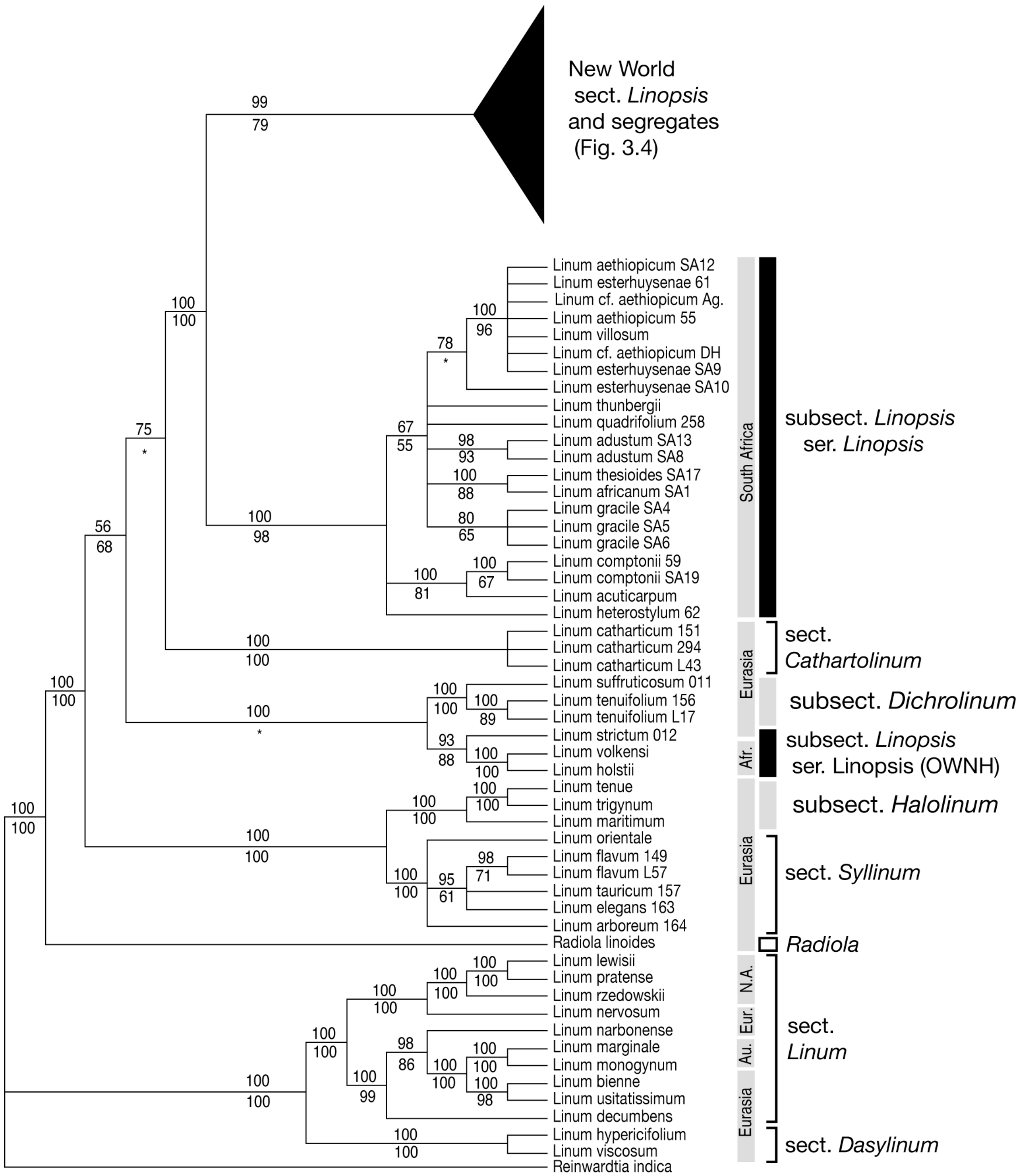

Fig. 3.3. 50% Majority-rule consensus of 30k post-burn-in trees sampled during Baysian analysis of CPL matrix, Part One: Old World yellow-flowered *Linum* and outgroups. Bayesian posterior probabilities indicated above branches as percentages (branches with values <50% collapsed), ML bootstrap percentages below (values <50% indicated by *). Bars indicate taxonomy as in Fig. 3.2, and the general geographic distributions of clades.

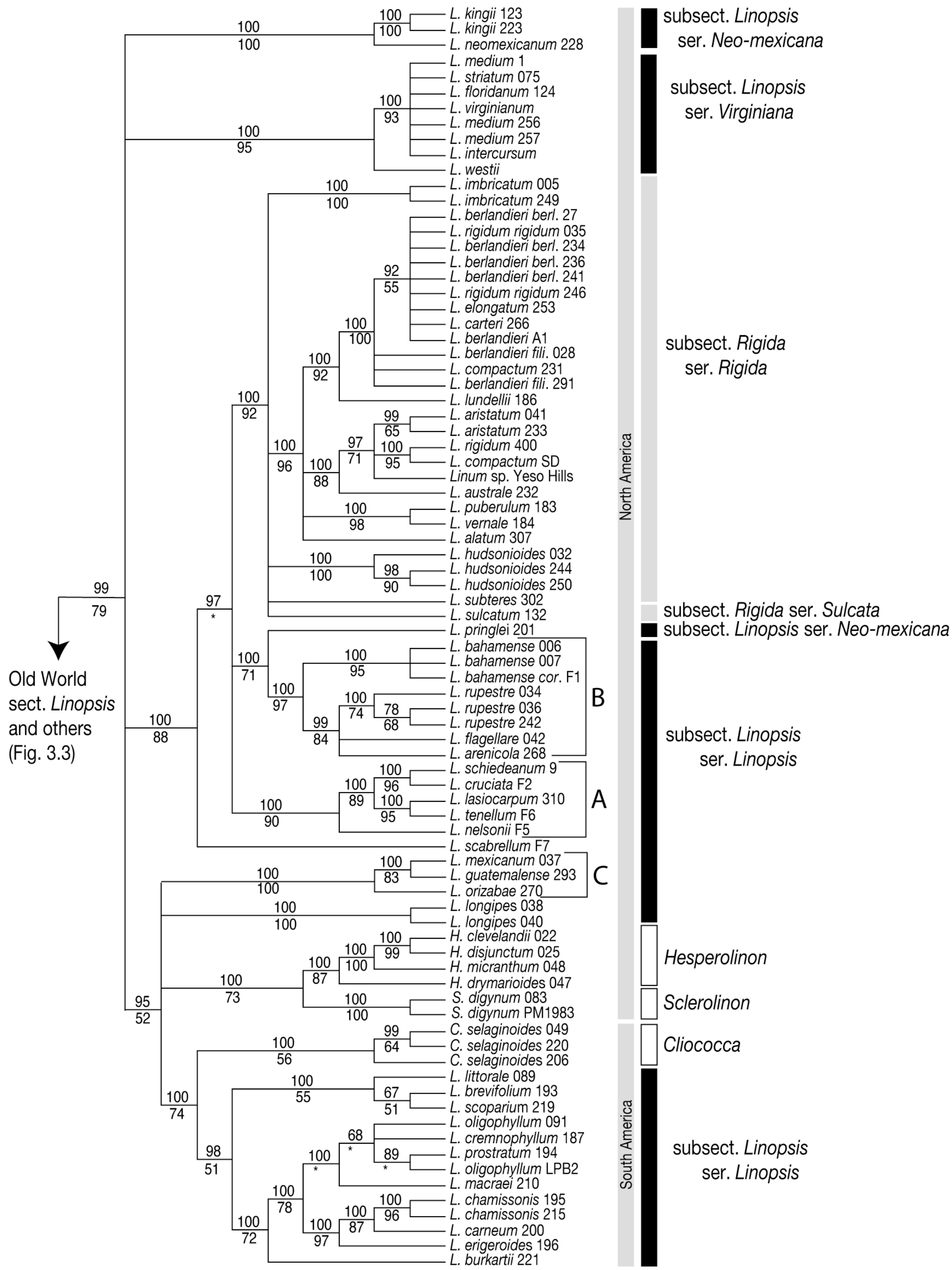

Fig. 3.4. Continuation of Fig 3.3, Part 2: New World taxa. The informal species groups referred to in the text are indicated by lettered brackets: A: *Linum schiedeanum* group, B: *Linum rupestre* group,C: *Linum mexicanum* group.

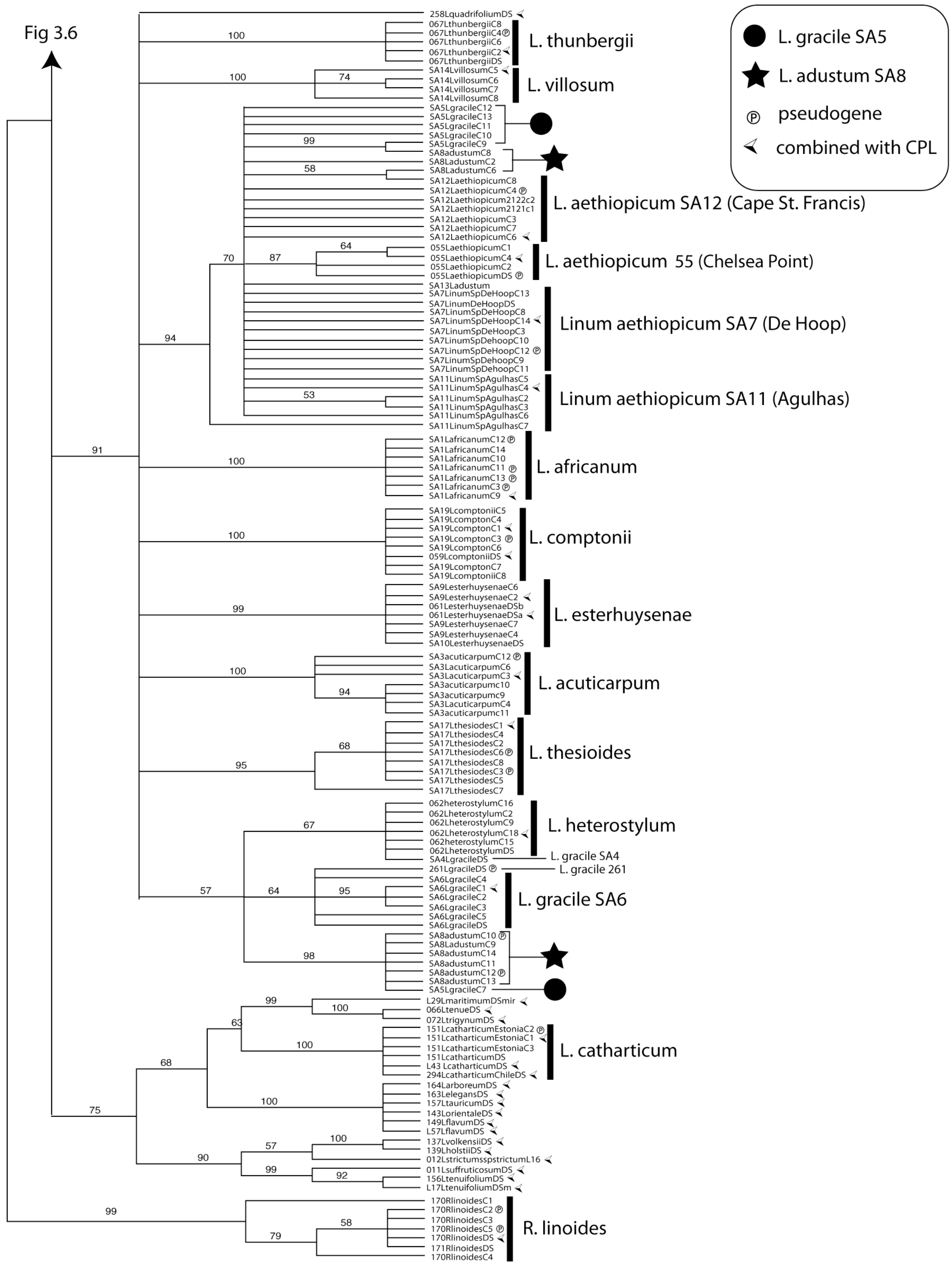

Fig. 3.5. ITS Clone sequence ML bootstrap 50% majority-rule consensus, Part 1. Nodes with less than 50% support are collapsed.

Fig. 3.6. ITS Clone sequence ML bootstrap 50% majority-rule consensus, Part 2. Nodes with less than 50% support are collapsed.

Fig. 3.7. ITS Clone sequence ML bootstrap 50% majority-rule consensus, Part 3. Nodes with less than 50% support are collapsed.

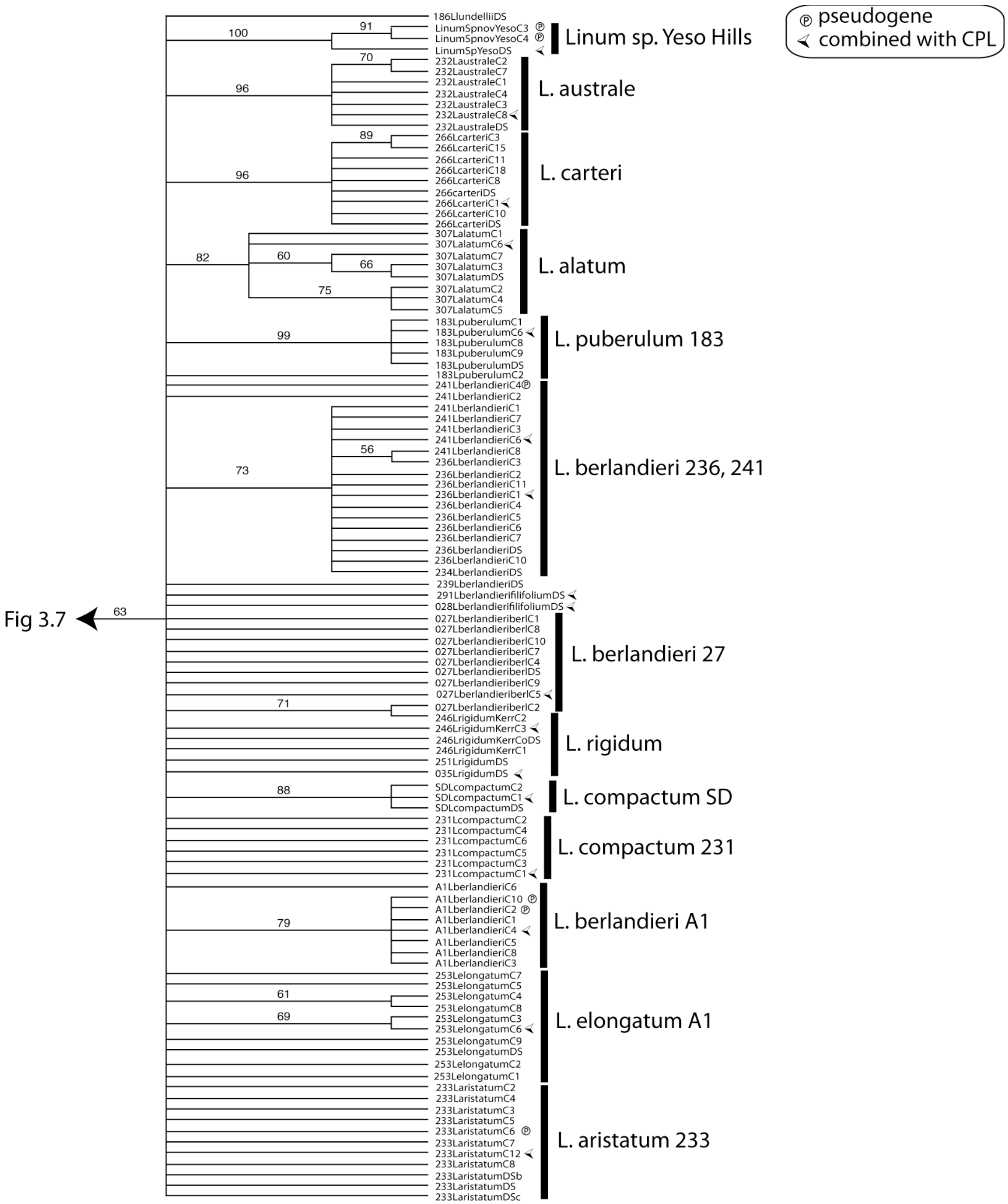

Fig. 3.8. ITS Clone sequence ML bootstrap 50% majority-rule consensus, Part 4. Nodes with less than 50% support are collapsed.

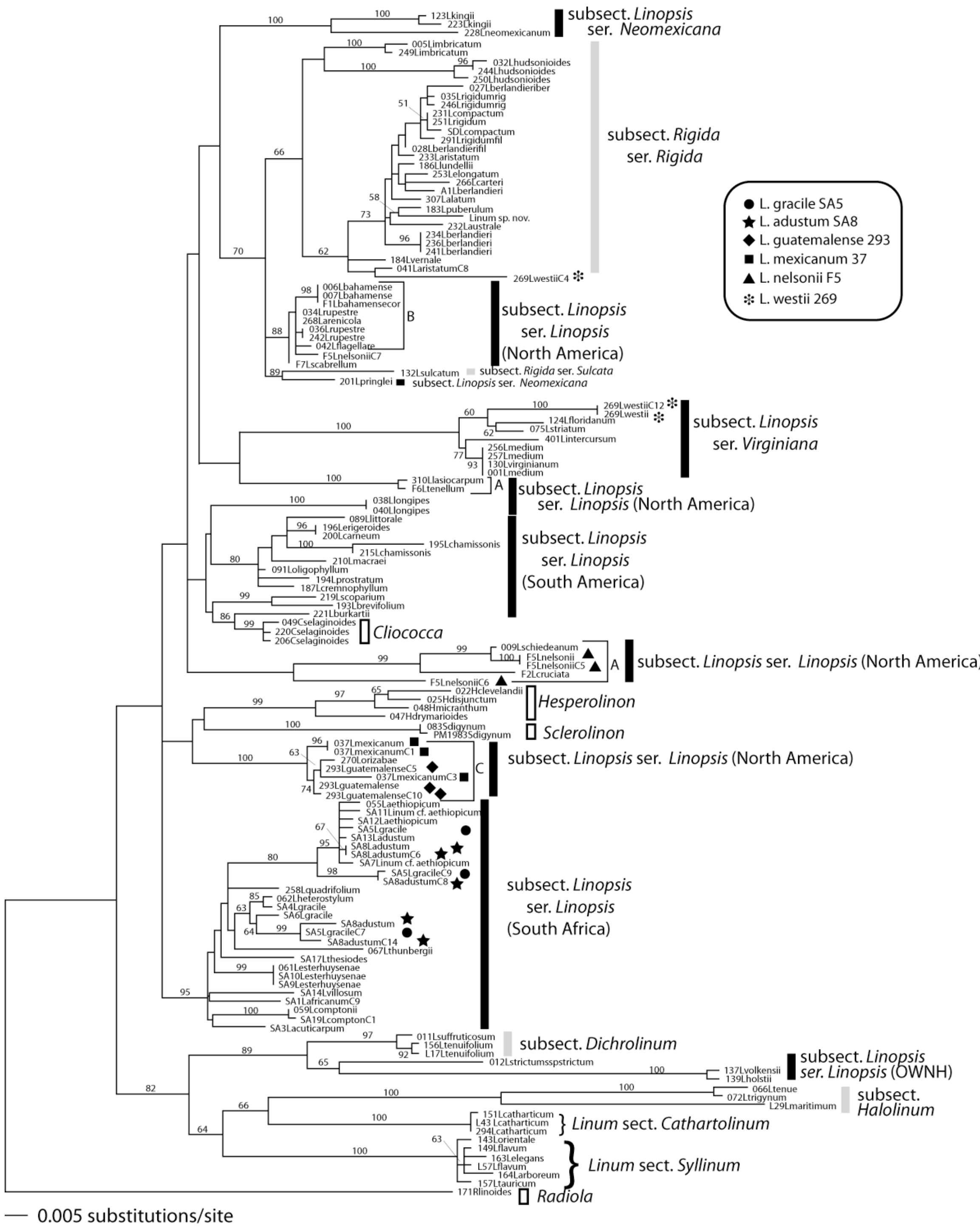

Fig. 3.9. Maximum-likelihood topology of selected ITS sequences (-lnL=7099.279), with ML bootstrap percentages (values <50% not shown). Bars indicate sectional and subsectional taxonomy. Lettered clades: A = *Linum schiedeanum* grp. (not monophyletic), B= *L. rupestre* grp., C=*L. mexicanum* group.

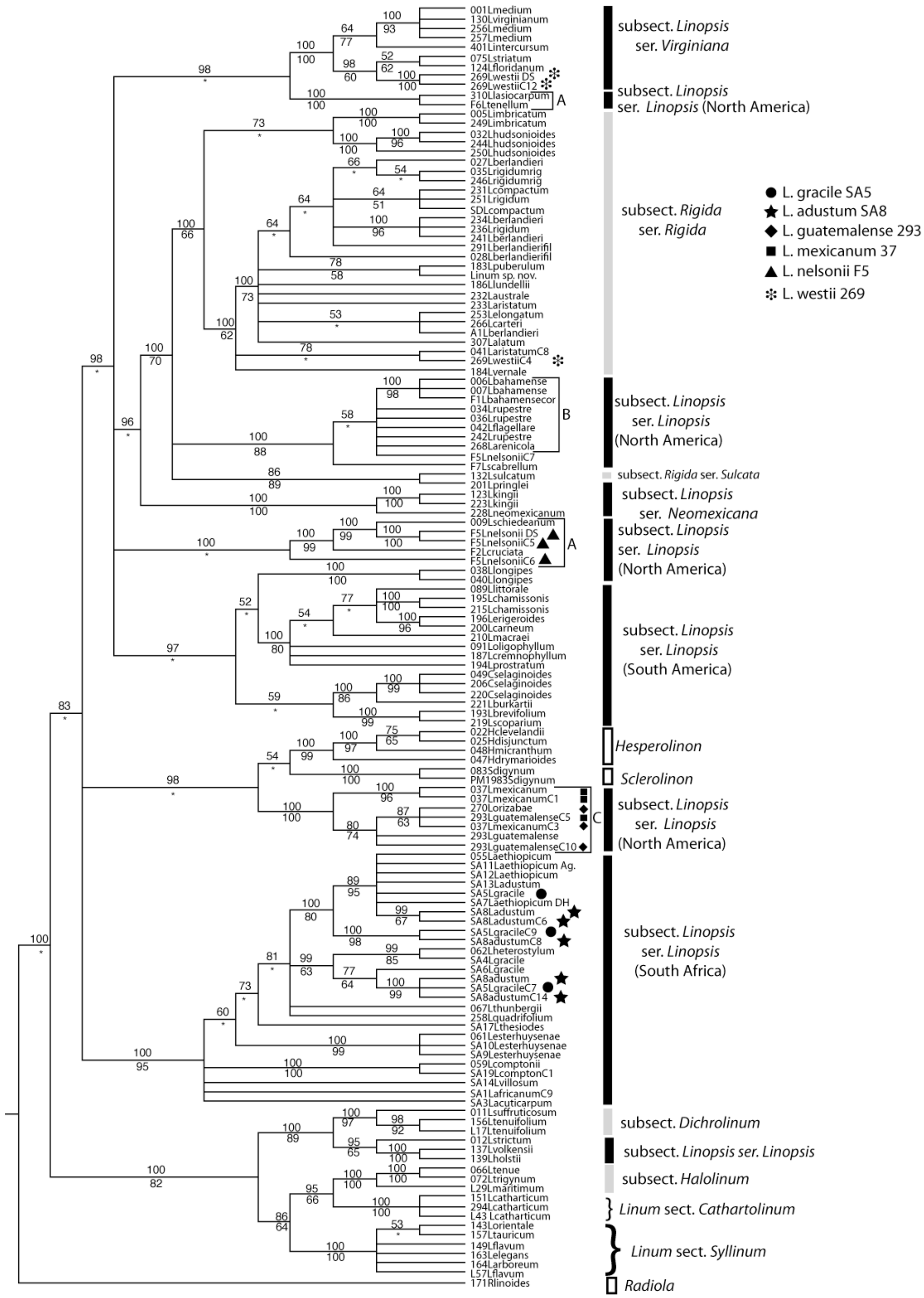

Fig. 3.10. Majority-rule consensus from Bayesian analysis of ITS. Posterior probabilities (as %) above branches, ML bootstrap below (<50% indicated by *). A=*L. schiedeanum* group, B=*L. rupestre* group, C=*L. mexicanum* group.

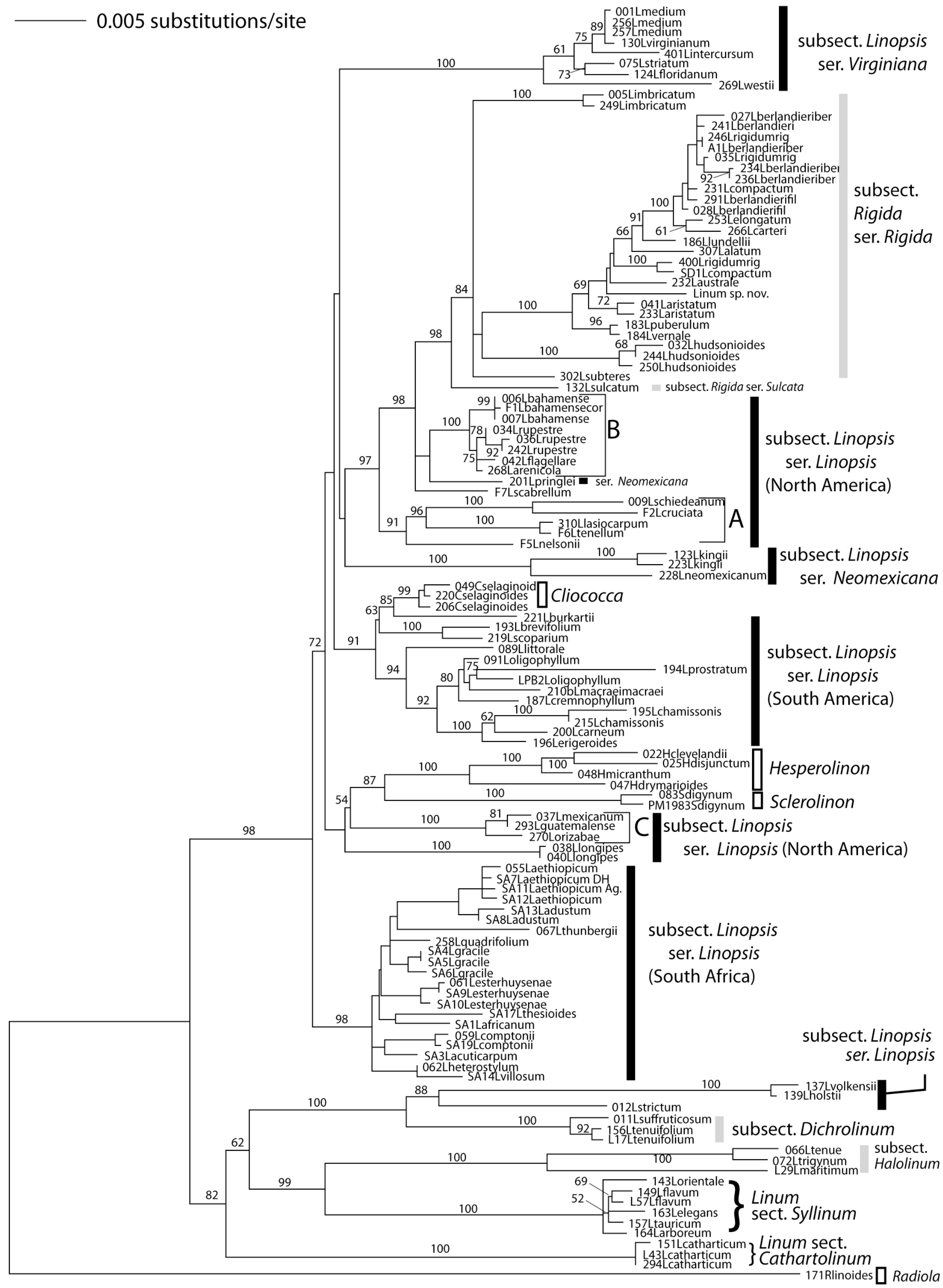

Fig. 3.11. Maximum-likelihood topology (–lnL = 18245.7291) for combined CPL+ITS matrix, with ML bootstrap percentages above branches (<50% not shown). Clade A = *Linum schiedeanum* group, B = *Linum rupestre* group, C = *Linum mexicanum* group.

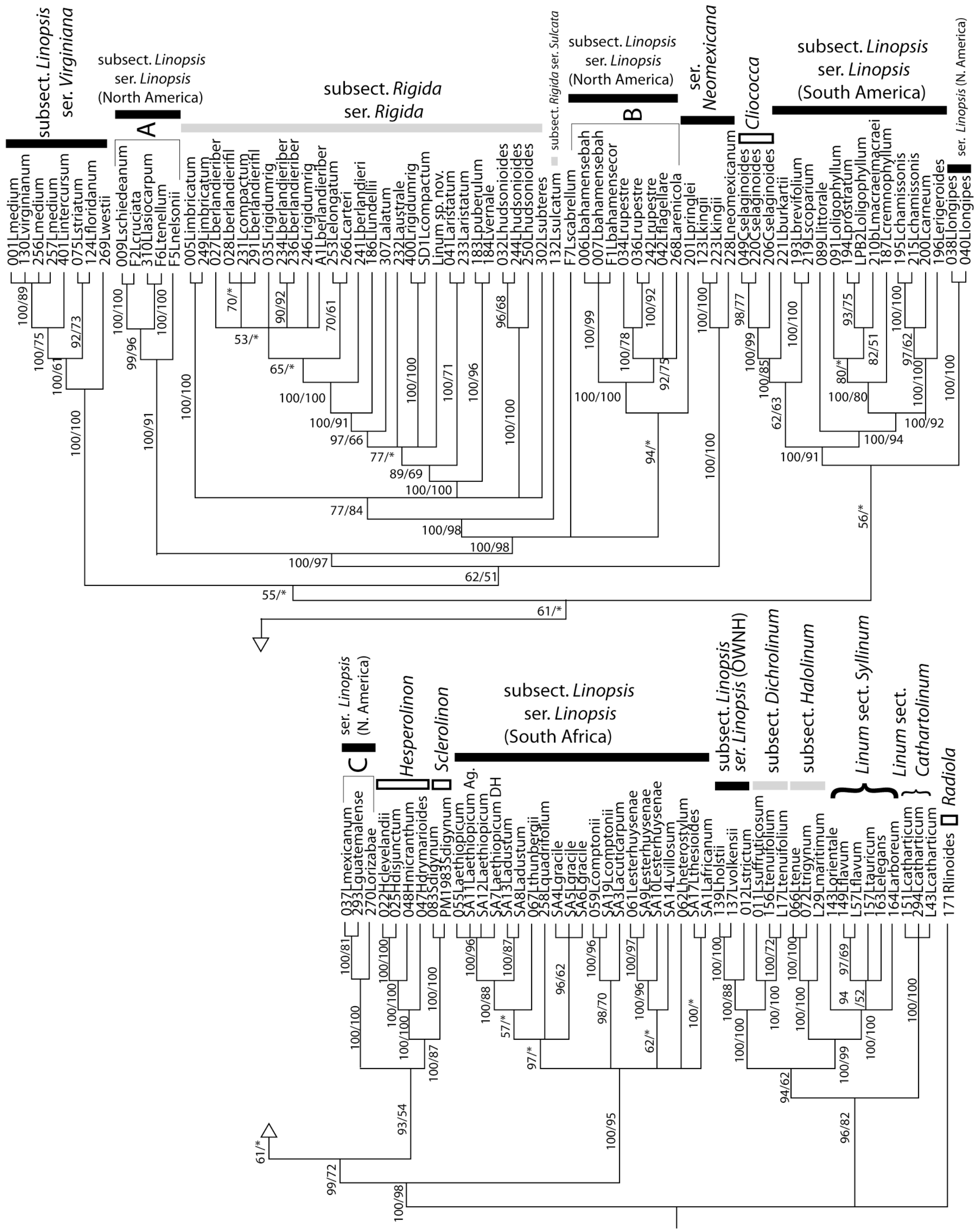

Fig. 3.12. Majority-rule consensus from Bayesian analysis of combined CPL+ITS data; posterior probabilities (as percentages)/ML bootstrap percentages (values <50% indicated by *). A = *Linum schiedeanum* group, B = *Linum rupestre* group, C = *Linum mexicanum* group.

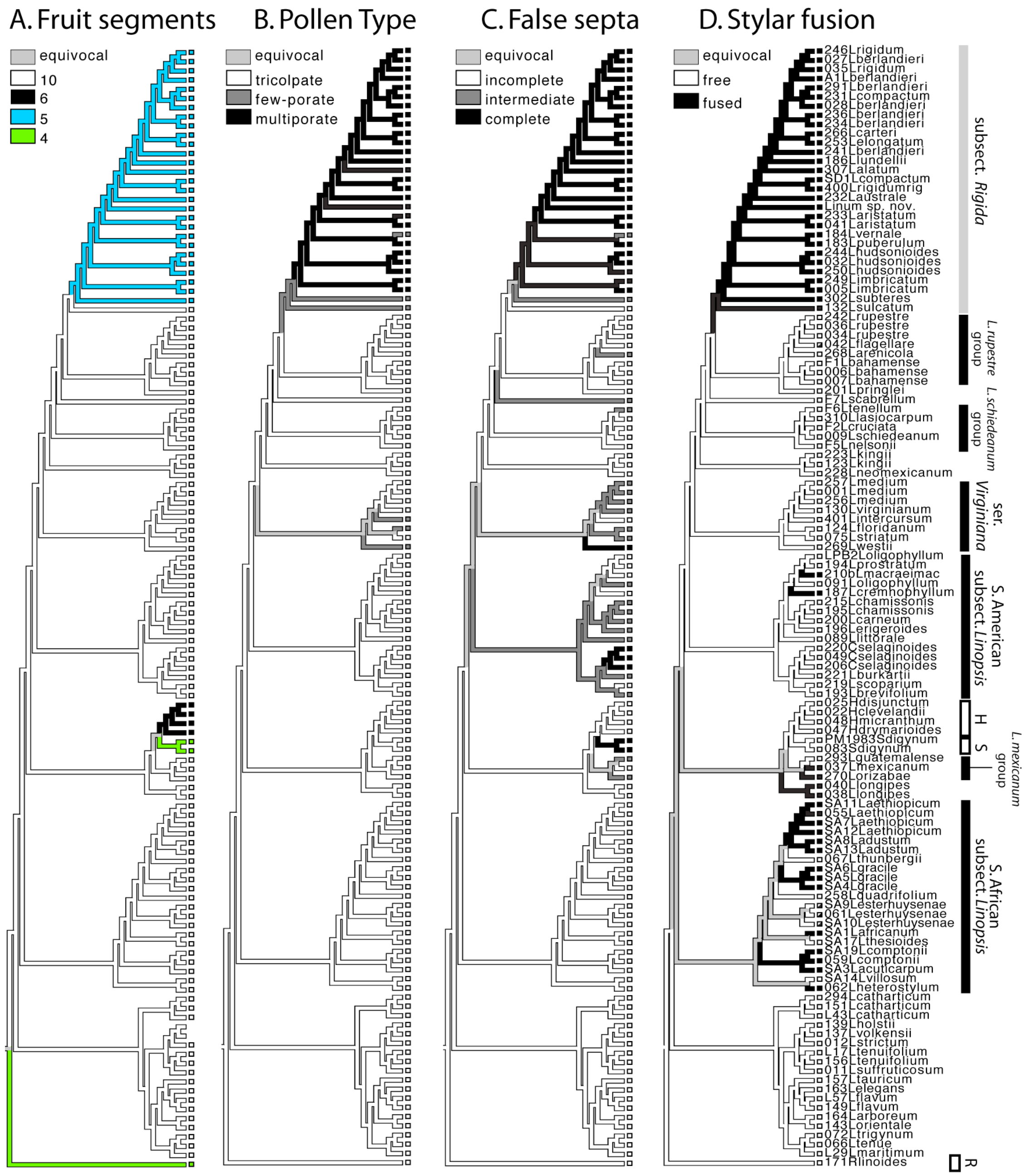

Fig. 3.13. Parsimony-optimized character mappings for four selected characters (topology = combined data ML topology). H= *Hesperolinon*, S= *Sclerolinon*, R=*Radiola*.

Chapter 4: On the Origins of Multiple Intercontinental Disjunctions in Yellow-Flowered *Linum* (Linaceae)

ABSTRACT

Yellow-flowered lineage of *Linum* (including the segregate genera *Cliococca*, *Hesperolinon*, *Radiola*, and *Sclerolinon*) has diversified on four continents: Eurasia, Africa, North America, and South America. Potential historical biogeographic scenarios for the establishment of species groups on each continent are evaluated in the context of molecular phylogenetic hypotheses based on nuclear (ITS) and chloroplast (*matK*, *ndhF*, *trnK* 3' intron, and t*rnL-F* intron and spacer) data and sampling from the majority of species from each region. All New World species form an apparently monophyletic group, suggesting a single Amphi-Atlantic disjunction, although statistical tests can not rule out the possibility of two trans-Atlantic events. The timing of this Amphi-Atlantic disjunction, based on relaxed Bayesian molecular clock analysis, indicates migration across the fragmenting North Atlantic land bridge in the Miocene may potentially explain this disjunction. Both the South American and South African species groups are well supported as monophyletic, indicating single colonization's of both southern continents from Northern Hemisphere ancestry. Establishment of these amphitropical disjunctions are also estimated to have occurred in the Miocene. We find no compelling evidence for recent intercontinental dispersal in this lineage of *Linum*, in accordance with the probably low dispersal potential exhibited by their dehiscent capsular fruits and large, smooth seeds.

INTRODUCTION

Best known as the genus of the cultivated flax, *L. usitatissimum* L., *Linum* includes nearly 200 species of annuals and suffrutescent perennials distributed throughout temperate and tropical regions of six continents. Considered as a whole, in its current circumscription, *Linum* has a subcosmopolitan distribution (Thorne 1972), but the two major lineages of *Linum* exhibit drastically different distributional patterns. The blue-flowered flaxes of *Linum* sects. *Linum* and *Dasylinum* (shown to comprise a monophyletic lineage in McDill et al. 2009) are essentially confined to Eurasia, with only a few species of section *Linum* native to other continents: three species in North America (Rogers 1984), and two in Australia and New Zealand (Rogers and Xavier 1971). In remarkable contrast, diverse species groups of yellow-flowered flaxes (*Linum* sect. *Linopsis*) exist in Eurasia, North America, South America, and Africa, with additional isolated species in the Galapagos islands, Madagascar, and India, but none native to Australia or New Zealand (Rogers 1982). Recent and ongoing molecular phylogenetic analyses have shown the species of section *Linopsis* to be part of a lineage that includes *Linum* sections *Cathartolinum* and *Syllinum*, and the segregate genera *Cliococca*, *Hesperolinon*, and *Sclerolinon* (McDill et al. 2009). This lineage has been loosely referred to as the "yellow-flowered clade" of *Linum*, and is consistently found to be sister to the monotypic genus *Radiola* Roth. (McDill et al. 2009, and Chapters 2 and 3 of this dissertation). The geographic distribution of the group is depicted in Fig. 4.1, with the approximate number of species indicated for each area based on floristic and taxonomic treatments. This distribution implies that multiple trans-Atlantic and trans-tropical disjunctions have taken place in the course of the diversification of yellow-flowered *Linum*.

Botanists have been intrigued by such intercontinental disjunctions for over 150 years (Gray 1846, Hooker 1860, Thorn 1972, Raven and Axelrod 1974), and several general biogeographic hypotheses have been proposed to explain amphi-Atlantic and amphitropical disjunctions in plants. In the Southern Hemisphere, transatlantic disjunctions between Africa and South America are sometimes considered products of vicariance due to the breakup of Gondwana (Raven and Axelrod 1974). In the Northern Hemisphere, transatlantic disjunctions between North American and Eurasia might result from Gondwanan vicariance followed by dispersal or migration into the Northern Hemisphere (Davis et al. 2002a), or migration across ancient North Atlantic or Beringian land-bridge connections followed by isolation when the bridges became discontinuous (Thorne 1972, Raven and Axelrod 1974, Wen and Ickert-Bond 2009). This Boreotropic Hypothesis (Wolfe 1975, Tiffney 1985) postulates the movement of tropical and warm-temperate taxa across a North Atlantic land bridge during the Eocene and Oligocene (55 to 25 mya). This idea has been used to explain modern amphi-Atlantic disjunctions of taxa whose divergence times or phylogenetic relationships are found to be incompatible with Gondwanan vicariance (Lavin and Luckow 1993, Davis et al. 2004, Weeks et al. 2005, Milne 2006). Long-distance dispersal — mediated by animals, wind, or floating rafts of debris — provides another potential mechanism for the establishment of amphi-Atlantic disjunct lineages in either hemisphere (Raven 1963, Thorne 1972, Houle 1998, Givnish and Renner 2004, Renner 2004).

Amphi-tropical disjunctions, in which closely-related species are found in temperate areas of the Northern and Southern hemispheres but are absent from the intervening tropical regions, are observed in numerous genera in both the Old and New World, with New World amphitropical disjuncts receiving the most attention from botanists (Thorne 1972, Wen and Ickert-Bond 2009). Most cases, particularly those involving disjunct species or species pairs, are generally considered the products of relatively recent (<2 mya) long-distance seed dispersal, with migrating shorebirds frequently implicated as potential agents of transportation (Raven 1963, Wen and Ickert-Bond 2009). More ancient dispersals (>15 mya) have also been invoked for some taxa, such as *Ephedra* (Ickert-Bond et al. 2009), where divergence times between North and South America greatly predate the closure of the Panamanian isthmus and the establishment of migratory pathways. Amphitropical distributions could also be the product of a historically continuous distributions of species which became disjunct due to extinction in the tropics (Raven 1963), though this scenario has not been supported by findings from molecular phylogenetic studies of amphitropical disjuncts to date (Wen and Ickert-Bond 2009).

Few specific references have been made to potential biogeographic histories for Linaceae or *Linum.* Based on Paleocene occurrences of *Ctenolophon*-type pollen fossils in Africa and South America (Germeraad et al. 1968), Raven and Axelrod (1974) concluded that the amphi-Atlantic distribution of both subfamilies of Linaceae could be a result of vicariance due to the breakup of Gondwana. Though *Ctenolophon* has been considered a member of Linaceae in the past (Winkler 1931), molecular phylogenetic studies (Savolainen et al. 2000, Wurdack and Davis 2009) have shown that placement was probably incorrect, so its occurrence can not be used as direct evidence for the age of

Linaceae, and does not establish the presence of Linaceae in South America and Africa prior to the breakup of Gondwana. The earliest known fossils of Linaceae are *Linum* pollen grains from northeastern Spain, dated to the late Eocene, between 33.9 and 37.2 million years ago (Cavagnetto and Anadón 1996). As discussed in Chapter 2, the fossil pollen appears most similar to either the *Linum catharticum* or *Linum austriacum* pollen types defined by Punt and Den Breejen (1981). The fossil record thus establishes the presence of *Linum* in Europe in the late Eocene, but fossil occurrences from other continents and other genera of Linaceae are unknown.

In the course of revisionary work on *Linum* sect. *Linopsis*, both Rogers and Mildner noted possible relationships between Eurasian, African, and New World linums based on morphological similarities. Rogers proposed that *Linum* section *Linopsis* (and *Linum* generally) originated and initially diversified in Eurasia, and that the African and American species groups were ultimately derived from Eurasian ancestry (Rogers 1982). This was essentially confirmed by McDill et al. (2009), who found that lineages of Old World Northern Hemisphere Linoideae form a paraphyletic grade that subtends the African and New World lineages. Rogers also cited the occurrence of a few species of section *Linopsis* in Tropical East Africa (e.g., *Linum keniense, L. volkensii*, and *L. holstii*) as evidence of a biogeographic connection between South Africa and the Mediterranean region (Rogers 1982), an idea tentatively refuted by the results of McDill et al. (2009), which showed the four South African taxa sampled having an origin independent from the East African taxa (represented by *L. volkensii*).

Rogers cited morphological similarities of Mexican species of *Linum* to South African *Linum quadrifolium* Thunb. as possible evidence for a South African origin of North American *Linum* (Rogers 1969). While revising the taxonomy of South American *Linum*, Mildner and Rogers further discussed morphological similarities of "primitive" South American and Mexican flaxes to African taxa, suggesting close relationships among species on all three continents and the possible derivation of all New World members of section *Linopsis* from South African ancestry (Mildner 1971, Mildner and Rogers 1978). Although potential African ancestry of New World linums has been suggested repeatedly, no specific time frame or mechanism for the putative intercontinental disjunctions were proposed. The morphological similarity of species on the different continents could alternatively be explained as convergences or retained plesiomorphic states rather than indicators of recent common ancestry.

We can envision several historical scenarios by which yellow-flowered *Linum* could have attained its current distribution, each scenario with certain phylogenetic consequences. Three simplified scenarios and hypothetical phylogenies exhibiting the concomitant "expected" sets of relationships are presented in Fig. 4.2. A scenario fitting Rogers' morphology-based hypothesis is shown in Fig. 4.2 A, with North American and South American taxa comprising a monophyletic group that is nested within (derived from) an African lineage. If New World flaxes originated from South African ancestry, we could expect the South African group to be non-monophyletic. Figure 4.2 B represents a scenario involving a northern hemisphere trans-Atlantic disjunction, which would be consistent with the movement of *Linum* across a North Atlantic land bridge or dispersal from Europe to North America. In this scenario, amphitropical disjunctions are the product of independent colonizations of South America and South Africa from North America and Eurasia, respectively. Testable expectations of this scenario include North American non-monophyly (due to the derivation of South American *Linum* from within the North American lineage), New World monophyly, and South American monophyly. Figure 4.2 C represents an example of a more complex scenario, with independent Northern and Southern trans-Atlantic events, and independent Old and New world amphitropical events. In this scenario, the testable expectations would include the non-monophyly of all of the continental species groups.

In addition to topological expections, these geology-linked biogeographic scenarios impose temporal expectations on the establishment of disjunct lineages. As mentioned above, Gondwanan vicariance requires the occurrence of the common ancestor of the disjunct lineages to be present prior to the separation of South America and Africa, which was well established by the late Cretaceous, approximately 100 mya (Sanmartin and Ronquist 2004). The North Atlantic land bridge is estimated to have provided a continuous migration pathway for temperate or warm-adapted plants from the early to mid Eocene (approximately 55 mya to 45 mya; Tiffney 1985, Tiffney and Manchester 2001). The land bridge became discontinuous during the latter half of the Eocene, and temperature, moisture, and light availability also becoming limiting factors, although the potential for migration by island hopping may have been possible as recently as 15 mya (Tiffney and Manchester 2001, Milne 2006, Bell 2007). The Bering land bridge was also an available pathway for migration from Eurasia to North America from at least the early Eocene until the late Miocene (as recently as 5 mya).

More recent long-distance dispersals might also provide an explanation for the distribution of extant *Linum* species, but the genus presents challenges for dispersal scenarios as well. The fruits of all flaxes are dehiscent capsules and the seeds are large (ranging from 1 to 5 mm in length, depending on the species) and smooth. Other than the seeds of some species exuding a gelatinous matrix (and thus perhaps becoming sticky) when wet (pers. obs.), neither the fruits or seeds of *Linum* have any obvious adaptations for dispersal, so their potential for long-distance dispersal is also in question.

Our goal here is to utilize phylogenetic hypotheses based on chloroplast and nuclear DNA sequence data from an extensive sample of *Linum* species (Chapter 3) to investigate history of intercontinental disjunctions in the yellow-flowered lineage of *Linum*. To this end, we employ several different methods to compare the phylogenetic results with the expectations of different biogeographic scenarios. Parsimony-based optimizations of continental distributions on molecular phylogenies are used to identify the minimal number and direction of intercontinental disjunctions that may have taken place in this lineage. Divergence time estimates for the yellow-flowered clade are used to assess compatibility of the establishment and diversification of disjunct lineages with geological factors such as land bridge continuity. Finally we use a statistical method referred to as the SOWH test (Goldman et al. 2000) to discriminate among different potential biogeographic scenarios based on their predictions regarding the monophyly of different lineages of yellow-flowered linums.

MATERIALS AND METHODS

Taxon Sampling — In the previous phylogenetic study of yellow-flowered *Linum* (Chapter 3), specimens were selected to represent the taxonomic diversity of this lineage on the four continents where the majority of species occur. While the attempt was made to accomplish complete taxon sampling (based on the most recent taxonomic and floristic treatments) for North American, South American, and African linums, viable DNA extracts for certain species were unavailable due to the unavailability of sample-able specimens or apparent degradation of DNA in specimens of advanced age. Other taxa (e.g. additional members of *Linum* sect. *Syllinum*) were not sampled because of their membership in geographically-restricted lineages we believe to be monophyletic based on earlier studies. A complete account of missing taxa, noting their geographic distributions, follows.

From Eurasia, the unsampled taxa of *Linum* section *Linopsis* are *L. corymbulosum*, *L. setaceum* (both Mediterranean species), and *L. mysorense* (endemic to India and Sri Lanka). Only five of an estimated 37 species of *Linum* section *Syllinum* were sampled; this section was found to be monophyletic as sampled by Vasilev et al. (2008) and McDill et al. (2009). Additional sampling of section *Syllinum* is unlikely to alter our understanding of the historical biogeography of the yellow-flowered lineage with respect to its intercontinental disjunctions, since all members of the section are confined to the Mediterranean region and western Asia.

From Africa, samples for the three Malagasy endemics (*Linum betsiliense* Baker, *L. emirnense* Bojer, and *L. marojejyense* (Humbert) Rogers; Rogers 1981b) and the central African *L. keniense*, were not available due to the rarity and age of collections. Available specimens of two South African species, *L. brevistylum* Rogers, and *L. pungens* Planch., are not represented due to recalcitrant DNA extracts and limited available specimens.

From South America, sequences from seven of the 18 accepted species could not be obtained: the two Galapagos endemics (*L. harlingii* Elias. and *L. cratericola* Elias.), the Ecuadorean *L. filiforme* Urb. and Peruvian *L. polygaloides* Planch. (*L. oligophyllum* morphological group according to Mildner 1971), and three rarely collected taxa native to Brazil (*L. organense* Gardn., *L. smithii* Mildner, and *L. palustre* Gardn.).

From North America, four species of *Linum* were not sampled: *L. gypsogenium* G.L. Nesom, *L. modestum* C.M. Rogers, and *L. mcvaughii* C.M. Rogers are all narrow endemics of Mexico, and *L. macrocarpum* C.M. Rogers is known only from the type collection (from southern Alabama). Only four of the 13 species (Sharsmith 1961, O'Donnell 2006) of *Hesperolinon* were sampled.

All of the remaining species of yellow-flowered *Linum* currently known from Africa (Smith 1966, Rogers 1981a), the Americas (Mildner and Rogers 1978, Rogers 1984), and Eurasia (Davis 1967, Ockendon and Walters 1968, Yuzepchuk 1974) were sampled, some with multiple specimens, for a total of 122 samples (90 species, including the outgroup, *Radiola linoides* L.). Accession voucher information and geographic distributions are provided in Appendix B. For divergence time estimation and hypothesis testing, a reduced dataset was created in order to avoid effects of missing data (since sequences for some markers were not obtainable for some accessions). All accessions with 20% or more of the total sequence length coded as missing data were removed, and most species with multiple accessions were reduced to a single representative to reduce computational time. The *trnK* 3' intron data was not included in the reduced matrix, since sequence from that region could not be obtained from any South American species.

Topologies used for area cladograms — Three maximum-likelihood topologies were obtained in the previous phylogenetic study of yellow-flowered *Linum* (Chapter 3) and are referred to here for their biogeographic implications: the combined chloroplast (CPL) marker phylogeny (Figs. 4.3, 4.4), the nuclear ITS phylogeny (Fig. 4.10), and the combined CPL+ITS phylogeny (Fig. 4.12). Details of the data sets and phylogenetic analyses that produced these topologies can be found in Chapter 3. Species are assigned to seven general geographic regions based on distributional ranges a reported in taxonomic and floristic treatments and discerned from natural history collections: Eurasia (EUR), Tropical East Africa (TEA), South Africa (SAF), Eastern South America (eSAM, east of the Andes), Western South America (wSAM, west of the Andes), Southern North America (sNAM, including Mexico and Central America), and North America North of Mexico (nNAM). These geographic ranges are depicted in Fig. 4.1 B. With a few exceptions involving widespread North American species that occur in both MEX and NAM, no species occurs in more than one area. Areas were coded as unordered character states and mapped onto the three maximum likelihood topologies in Mesquite version 2.5

(Maddison and Maddison 2005) using “most-parsimonious reconstructions” mode to elucidate major biogeographic disjunctions among lineages.

Phylogenetic Analysis of the Reduced Matrix — The reduced data matrix described above was analyzed using GARLI 0.96b (Zwickl 2006) and Mr. Bayes 3.1.2 (Huelsenbeck and Ronquist 2001), as described in Chapter 3 for the full data matrices. Appropriate models of nucleotide substitution were determined for each partition of the reduced matrix using the Akaike Information Criteria (AIC) implemented in Modeltest 3.7 (Posada and Crandall 1998), so that the appropriate model type could be applied to each data partition during the Bayesian analysis. The phylogeny with the lowest –lnL value obtained by GARLI was designated as the observed “unconstrained” topology for comparison to trees found under different constraints during hypothesis testing.

Hypothesis Testing using the SOWH Test — The parametric bootstrap procedure termed the SOWH Test (Goldman et al. 2000) was used to test the monophyly or non-monophyly of different lineages, based on the expectations of different biogeographic scenarios, for their suitability as explanations for our data. First, an optimal topology was determined with each hypothetical constraint enforced in GARLI. The likelihood score differences between these constrained topologies and our original unconstrained phylogeny are the test statistics used to determine whether the constraint hypothesis is a possible valid explanation for out data, or, in other words, that the optimal unconstrained topology is a result of chance variation while the constrained topology is the true topology. Substitution model parameters estimated from the observed data given each constrained topology were used to simulate new matrices, each representing a random result of sequence evolution given the assumption that the constrained topology is true. These simulated matrices were then analyzed with and without the constraint enforced, to obtain a null distribution of score differences that can be expected due to chance variations in sequence evolution. If the test statistic for each constraint is greater than 95% of the null distribution values, then we conclude that it is unlikely ($p<0.05$) that the constraint is rejected as a potential underlying evolutionary history for the yellow-flowered clade. If the constraint can not be rejected, then we must conclude that the constraint topology is a possible underlying explanation for our observed data, and that our optimal unconstrained topology differs from the constraint merely due to chance. Constraints tested are described as follows:

A: North American Monophyly. The taxa of North America (including Mexico) are constrained to monophyly. If rejected, the implications are that yellow-flowered *Linum* colonized North America at least twice independently, or that a different continental lineage is derived from (nested within) North American ancestry. If not rejected, then we can not rule out a single introduction to North America, and no transfers out of North America.

B: South American non-monophyly. South America is forced to be non-monophyletic in this constraint. If rejected, we conclude that South American monophyly is indeed a significantly better explanation for our data, and that yellow-flowered *Linum* was introduced to South America once. If we can not reject this hypothesis, we must potentially allow for multiple introductions to South America, or South American ancestry for species currently found on another continent.

C: Southern North American Monophyly. The endemic linums of Mexico and Central America are constrained to monophyly. If rejected, we would conclude either that some Mexican and Central American linums have distinct origins from other areas and independently colonized the region, or that some other lineages of *Linum* are derived from Mexican or Central American ancestry. If this hypothesis can not be rejected, we must allow for the fact that monophyly of southern North American taxa can't be ruled out, and that these species may share a common origin and are products of speciation within the region.

D: South African non-monophyly. The South African species group is forced to be non-monophyletic under this constraint. If rejected, we can conclude that the South African group is probably monophyletic, that the extant species of yellow-flowered *Linum* in South Africa result from a single colonization event followed by speciation within South Africa, and that no other lineages are derived from within this radiation. If we can not reject this hypothesis as a possible explanation for our data, then we must allow for the possibility that South Africa was colonized multiple times by distinct ancestors, or that at least one South African lineage colonized another continent.

E: New World Non-monophyly. Under this constraint, the New World taxa are forced to be non-monophyletic. If rejected, we would conclude that the New World taxa comprise a single lineage, stemming from a single amphi-Atlantic disjunction event. If we can not reject this constraint, we must allow for the possibility of multiple amphi-Atlantic events, either as multiple introductions to the New World or one introduction to the New World followed by recolonization of the Old World from New World ancestry.

F: Monophyletic South American + South African Clade. All South American and South African Taxa are confined to a single monophyletic group. Rejection would indicate that South American and South African taxa do not share most recent common ancestry. Failure to reject would imply that these continental lineages may be sister to each other, which would be compatible with Gondwanan Vicariance (although existing divergence time estimates for Linaceae already indicate that the diversification of Linaceae significantly post-dates the breakup of Gondwana). This could also potentially be interpreted as an African origin of South American *Linum* by dispersal.

Constraint trees for each hypothesis were generated with MacClade 4.08 (Maddison and Maddison 2005). In the constraint trees, the indicated groups are represented as monophyletic, but no relationships were specified within the constrained clade or among any other taxa in the tree. For the non-monophyly constriaints (B, D, and E), the constraint trees (in which the group in question is represented as monophyletic) were enforced as negative constraints (only trees *not* compatible with the constraint tree were allowed), forcing the analysis to find the optimal topology in which the group is *not* monophyletic. For the other hypotheses (A, C, E, and F), the constraint trees were enforced as positive constraints (only topologies compatible with the constraint tree are allowed), resulting in optimal topologies in which the designated group *is* monophyletic. To find the best constrained topology and likelihood score, 100 search replicates were performed in the reduced data matrix in Garli 0.96b with the constraint enforced, and the lowest –LnL score found under each constraint used as the optimal score for that constraint. The optimal unconstrained score was subtracted from these values to obtain the test statistic for each constraint.

The GARLI-optimized GTR+Γ+I substitution model parameters obtained during each constrained analysis of the original data were used to generate the simulated data matrices on each resulting optimal constrained topology. One-hundred datasets were simulated on each constrained topology using Seq-Gen v. 1.2.7 (Rambaut and Grassly 1997), operated via the *SG Runner* interface (Wilcox 2005). To control for any effects of alignment gaps on the optimal topologies or likelihood scores, the pattern of missing data and gaps found in our original data alignment was replicated in the simulated matrices using a simple Objective-C program written for Mac OS-X by Marc Caddell, which scans the sequence of each taxon on the original matrix for cells coded as missing or gap characters, then replaces any A, C, T, or G at the same sequence position in each simulated matrix with a missing/gap symbol. Each simulated matrix was analyzed with and without its constraint hypothesis enforced in GARLI 0.96b to obtain the null distribution of tree score differences for each constraint.

Divergence Time Estimates — A likelihood ratio test was used to test for rate constancy in the combined reduced data matrix; the hypothesis of a molecular clock was rejected ($P<0.001$). To assess the compatibility of lineage divergence times with potential migration pathways such as the North Atlantic land bridge, divergence times were estimated using BEAST version 1.4.8 (Drummond and Rambaut 2007), which estimates divergence times and confidence intervals using a Bayesian methodology that is not conditional on a single tree topology or set of branch lengths. This is advantageous in the case of the yellow-flowered clade, since several important nodes in the tree backbone lack significant support in our phylogenetic analyses. The uncorrelated lognormal relaxed clock option was used in BEAST, with a Yule process model for speciation rate. The only prior set to a non-default value was the *tmrca* prior – the age of the root of the tree was set to a normal distribution prior with the mean at 28.5 mya before present and a standard deviation of 1.0. This is the average divergence time estimated in Chapter 2 for the split of *Radiola linoides* from yellow-flowered *Linum,* in analyses that included a fossil calibration point at 33.9 my for the minimum age of the common ancestor of all *Linum* sp., based on the pollen fossil described by Cavagnetto and Anadon (1996), and constrained the maximum age of Linaceae to values estimated by Davis et al. (2005). The MCMC chain was run for 30 million generations in BEAST with the auto-optimize feature activated (burn-in period of 3 million generations). Parameters were sampled every 1000th generation. The run was replicated to verify post-burn-in convergence of on similar likelihood values and divergence time estimates, and results from the two runs combined as recommended in the BEAST manual. Effective sample sizes for all estimated parameters and node ages were well above 200 (also as recommended).

RESULTS

The ITS (Fig. 4.3) and CPL (Fig. 4.4) topologies agree in several respects: the basal position of Eurasion taxa (indicating Eurasian ancestry for the African and New World lineages), the monophyly of South African taxa (indicating a single introduction to that continent), and the sister relationship of Tropical African linums (represented by *Linum volkensii* and *L. holstii*) to *L. strictum* (a Mediterranean species). They differ, however, in terms of the biogeographic relationships among African and New World species groups. In the ITS topology, the South African clade is shown as sister to a North American clade consisting of *Hesperolinon*, *Sclerolinon*, and a group of Mexican endemics that has been referred to as the *Linum mexicanum* group. The ITS topology (Fig. 4.3) also shows a Mexican species, *Linum longipes*, inserted among the South American taxa. A Mexican/Central American distribution is indicated for the ancestor of the South African, South American, and northern North American lineages, with South Africa being colonized once and both South and northern North America colonized twice. The ITS data does not provide strong support for any of the most important nodes along the backbone of the phylogeny, however. The CPL topology (Fig. 4.4) shows the New World lineages as monophyletic, with northern North America as the first New World area colonized. The CPL topology implies that South America was colonized once from northern ancestry, and Mexico perhaps multiple times, with possible recolonizations of northern North America from Central American ancestry.

The combined unreduced topology (Fig. 4.5) again shows a sister relationship between the tropical African taxa and Eurasian *Linum strictum*. The node representing the most recent common ancestor of the South African and New World linums is equivocal; this ancestor could have resided on any of the continents in question. The South African species complex is monophyletic and well supported, and the New World lineage is moderately well supported as monophyletic. The New World taxa are divided among three clades, but the relationships among these clades is not well supported or resolved. The South American species complex is well supported as monophyletic and derived from North American ancestry, but its specific origin from either Mexican or more northern ancestry is uncertain. The North American taxa are divided into two lineages, one including the North American segregate genera and the *Linum mexicanum* group, and the other with the majority of North American species. The affinities of the Mexican endemic *Linum longipes* are not well resolved.

Reduced data unconstrained phylogeny — The final reduced matrix consisted of 74 accessions representing 72 species (including the outgroup, *Radiola linoides*), and 3086 bp of combined chloroplast and nuclear data (1160 bp matK, 440 ndhF, 837 trnL-F, 649 ITS). Accessions included in the reduced matrix are indicated in Appendix B. Data matrix characteristics for the reduced data set are given in Table 4.1. The phylogeny resulting from this matrix is presented in Fig. 4.6, with geographic areas traced on the phylogeny as described above. This phylogeny is largely compatible with those derived from the original taxon sample in Chapter 3. The Old World Northern Hemisphere species of *Linum* are found to be monophyletic, and sister to a well-supported South African and New World clade. South African taxa are a well-supported group sister to a New World lineage. The South American lineage is well supported as monophyletic, and appears to be inserted between two North American lineages, but the branching order of these lineages is not well supported. The monophyly of each North American clade is not well-supported, with considerable uncertainty indicated for the relationships of *L.*

longipes, the series *Virginiana* clade (*L. westii* to *L. medium*), and the *L. neomexicanum*-*L. kingii* clade.

Parametric Bootstrap Results — The optimal unconstrained phylogeny had a -LnL score of 15354.06. Optimal likelihood scores resulting from constrained analyses are shown in Table 4.2, along with SOWH test results for each hypothesis. All constraint hypotheses were rejected with $P<0.01$ except for that of New World non-monophyly ($P=0.12$).

Divergence Time Estimates — Mean divergence times and 95% confidence intervals (= 95% height density proportion) estimated in BEAST for key nodes of the yellow-flowered *Linym* phylogeny (nodes designated by letters in Fig. 4.5) are given in Table 4.3. Divergence times and confidence intervals are presented graphically in Fig. 4.7; node heights (distance from each node to the root) in this chronogram represent the average divergence time estimated by BEAST during the post-burn-in sampling. Most of the major lineages of yellow-flowered *Linum* are estimated to have originated in the Miocene, though the South African and New World lineage may have diverged from its Old World Northern Hemisphere relatives in the early Oligocene (32.22 mya, maximum). Most of the species sampled appear to have diverged from their sister species in the Pliocene (Fig. 4.7). Divergences of the South African, South American, and North America lineages from each other (nodes E, F, and H) are estimated to have occurred within a narrow span of time in the mid-Miocene, between 16 and 15 mya, although confidence interval indicate these divergences may have occurred any time between 26.54 and 9.5 mya. Extant sampled South African species are estimated to have radiated from their common ancestor relatively recently, between 4 and 9 mya (avg. 6.21), compared to North American and South American lineages.

DISCUSSION

We find that a single trans-Atlantic event provides the most parsimonious explanation for the amphi-Atlantic disjunction in the yellow-flowered lineage of *Linum*, indicated by the monophyly of the New World taxa in the optimal phylogenies resulting from all unconstrained analyses of the combined ITS and CPL data (Figs. 4.4, 4.5). However, considerable uncertainty surrounds this issue. First, the branching order of lineages along the "backbone" of the phylogeny of yellow-flowered *Linum* lacks significant posterior probability or bootstrap support, due either to conflicting or inadequate phylogenetic signal from the combined markers. The ITS data alone suggest that the South African clade is nested within the "New World" lineage, sister to the North American *Hesperolinon* and *Linum mexicanum* group clade, which potentially requires a second trans-Atlantic event, from North America to South Africa (Fig 4.3). The parametric bootstrap test of New World monophyly subsequently fails to reject this hypothesis, so we can not rule out the possibility of two trans-Atlantic events, either as two colonization's of the New World or the colonization of South Africa from New World ancestry. The optimal resolutions for the combined data matrices, which place the South African clade sister to the New World clade, also create a situation in which it is not possible to ascertain (via parsimony area optimizations) which continent, Africa or

Eurasia, was the origin of the New World colonist(s). Rejection of South African non-monophyly argues against a South African origin for the New World clade.

Divergence time estimates indicate that New World yellow-flowered *Linum* diverged from extant Old World taxa and began to diversify in the Americas during the Miocene, between 22.5 and 10 mya (Fig. 4.7). This is compatible with migration across the remnants of the North Atlantic land bridge during the last stages of its existence (Milne 2006). Several other angiosperm lineages exhibit Miocene amphi-Atlantic disjunctions that are concluded to be products of North Atlantic migration, including Cistaceae (Guzmán and Vargas 2009), *Cercis* (Davis et al. 2002b) *Platanus* (Meyers and Liston 2008), *Valerianella* (Bell 2007), *Fagonia* (Beier et al. 2004), Burseraceae (Weeks and Simpson 2005), and multiple lineages of Antirrhineae (Vargas et al. 2004). Like *Linum*, several of these are taxa whose seeds and fruits are thought to have very limited potential for long-distance dispersal (eg., *Cercis*, *Fagonia*, and Antirrhineae, all of which were noted bear dehiscent capsules and relatively large, smooth, unwinged seeds).

Two independent amphitropical disjunctions are indicated by our results. In the New World, parsimony ancestral area reconstructions on all optimal topologies indicate that South American *Linum* is derived from North American ancestry (Figs. 4.3, 4.4, 4.5, 4.6). We interpret the rejection of North American monophyly as an argument in favor of the North American origin of South American *Linum*. South American *Linum* is concluded to be monophyletic (non-monophyly rejected by SOWH test, $P<0.01$), and therefore a result of a single intruduction to the continent followed by speciation. The colonization of South America is estimated to have occurred in the latter part of the

Miocene, no later than 6 mya (node P, Fig. 4.7, the time estimated for the beginning of yellow-flowered diversification in South America). During this period, the closure of the isthmus of Panama is thought to have been in its final stages (Keigwin 1978), with potential volcanic island arcs providing a possible migration pathway up until completion of the isthmus in the Pliocene. In spite of its limited dispersal ability, *Linum* might therefore be added to the list of taxa providing evidence for dispersal between North and South America prior to closure of the isthmus (Ickert-Bond et al. 2009). *Linum* appears to have diversified first in Eastern South America, with several lineages colonizing the western portion of the continent as *Linum* diversified in late Miocene and Pliocene.

The South African species group is generally well supported as monophyletic (Figs. 4.3-4.6), implying a single introduction of yellow-flowered *Linum* from the Northern Hemisphere to South Africa, followed by speciation within South Africa. South African non-monophyly is rejected ($P<0.01$), further supporting the conclusion that *Linum* was introduced to South Africa once. With the exception of the widespread species *Linum thunbergii*, the most widespread species of *Linum* in Africa which we conclude originated in the South African radiation and then spread northward into Tropical East Africa, no dispersals or migrations out of South Africa are apparent (Figs. 4.3-4.7). The hypothesis that the Tropical African taxa provide a biogeographic connection between Eurasia and South Africa, as proposed by Rogers and observed for some South African clades in other familes (e.g. Penaeaceae and Stilbaceae; Galley and Linder 2006), is refuted by our results. The tropical African endemic taxa sampled (*Linum holstii* and *L. volkensii*) are clearly derived independently from Eurasian ancestry, and do not share a common origin with the South African group. South African *Linum* are estimated to have diverged from from the other continental lineages some 16 million years ago (node E, Fig. 4.7), with the sampled extant species beginning their diversification in South Africa between 3.5 and 9 mya (node W, Table 4.3, Fig. 4.7). This dating makes *Linum* a relatively recent addition to the South African Cape flora compared to some other Cape lineages whose divergence times from non-Cape relatives have been estimated to the mid-Oligocene or earlier (Galley and Linder 2006). Though the sister group of the South African lineage of *Linum* is apparently a New World clade, the exact origin of the South African lineage, whether Eurasia or North America, can not be determined from our current data and taxon sampling. Additional sampling from the native flaxes of Madagascar and India, areas often implicated in the biogeographic histories of the South African Cape Flora (Galley and Linder 2006), may clarify the origins of South African *Linum* in the future.

CONCLUSIONS

While the relationships of North American, South American, and South African species groups are poorly resolved by our current data, the parametric bootstrap method used here allows some conclusions to be made about the biogeographic history of yellow-flowered *Linum*. Both South America and South Africa appear to have been colonized only once — South America from North America, and South Africa from either Eurasia or North America. The intercontinental disjunt lineages of yellow-flowered *Linum* are estimated to have originated in the Miocene, when land bridges and island arcs may have facilitated migrationbetween Eurasia and North America and from North America to South America. In accordance with the probable low dispersability of *Linum* seeds and fruits, we find no compelling evidence for recent intercontinental long-distance dispersal in *Linum*; dispersal is generally invoked only for more recent divergences, usually of Pliocene age (Wen and Ickert-Bond 2009). Additional data and sampling are certain to resolve some of the relationships more confidently, and will allow better estimates of divergence times (Sanderson 1998).

Table 4.1: Data matrix characteristics for the reduced taxon set used for divergence time estimation and biogeographic hypothethesis testing. NTax = number of terminal taxa (ndhF sequence missing for L. quadrifolium), Nchar = total number of base pairs in aligned matrix for each region. Constant = # of constant characters. P.i. = number of parsimony informative characters. Model=substitution model type selected.

Matrix:	*matK*	*ndhF*	*trnL-F*	CPL Combined	ITS	CPL + ITS
NTax	74	73	74	74	74	74
NChar	1160	440	837	2437	649	3086
Number included	1160	440	837	2437	649	3086
constant	900	363	654	1918	340	2258
p.i.	132	41	93	266	228	494
Model	GTR+Γ+I	GTR+Γ+I	GTR+Γ+I	GTR+Γ+I	GTR+Γ	GTR+Γ+I

Table 4.2: SOWH test results for six constraints imposed on the reduced molecular dataset.

Constraint Hypothesis	-LnL	Δ	P
unconstrained	15354.06		
A) North American Monophyly	15360.43	6.37	<0.01
B) South American non-Monophyly	15365.64	11.58	<0.01
C) S. North American Monophyly	15487.82	133.76	<0.01
D) South Africa non-Monophyly	15391.81	37.75	<0.01
E) New World non-monophyly	15354.88	0.8282	0.12
F) South America+Africa monophyly	15363.96	9.90	<0.01

Table 4.3: Divergence times (mya) for lineages of yellow-flowered *Linum*, estimated by BEAST. Letters correspond to nodes in Figs. 4.6 and 4.7.

MRCA of…	mean	geom. mean	median	95% confidence interval lower	upper
(root) Radiola and yellow-flowered clade	28.07	28.00	28.06	24.20	32.10
A) Yellow-flowered *Linum* and segregate genera	26.35	26.06	27.13	17.82	32.22
B) Old World Northern Hemisphere group	24.55	24.11	25.37	15.36	31.52
C) *Cathartolinum*, *Syllinum*, *Dichrolinum* clade	22.64	22.14	22.84	13.68	30.73
D) MRCA of sect. Syllinum and subsect. Halolinum	18.21	17.73	18.10	10.12	26.54
E) South African and New World *Linum*	16.53	16.27	16.48	10.70	22.36
F) New World *Linum*	16.13	15.87	16.09	10.46	21.78
G) *Hesperolinon*, *Sclerolinon*, *L. mexicanum* group	15.14	14.83	15.00	9.36	21.12
H) MRCA of South American and main North American clade	14.97	14.73	14.93	9.54	20.12
I) main NAM clade	14.60	14.36	14.54	9.43	19.79
J) *Halolinum*, OWNH subsect. *Linopsis* clade	14.49	14.07	14.33	7.72	20.85
K) MRCA of *L. kingii* and *L. carteri*	14.06	13.82	14.01	8.98	19.06
L) MRCA of *L. schiedeanum* and *L. carteri*	12.37	12.15	12.33	7.71	16.68
M) MRCA *L. strictum* and *L. volkensii*	11.81	11.39	11.60	6.08	17.92
N) *Hesperolinon* and *Sclerolinon*	11.38	11.13	11.27	6.93	16.09
O) subsect. *Rigida* and *L. rupestre* group	10.12	9.93	10.07	6.35	13.93
P) South American clade	9.93	9.73	9.85	5.96	13.90
Q) sect. *Linopsis* subsect. *Halolinum*)	9.64	9.28	9.45	4.77	14.76
R) *Linum schiedeanum* group	9.24	9.01	9.16	5.19	13.25
S) Subsection *Rigida*	8.64	8.47	8.59	5.41	11.98
T) MRCA of wSAM *Linum*	7.91	7.73	7.81	4.61	11.20
U) *Hesperolinon*	7.47	7.25	7.34	4.05	11.04
V) Series *Neo-Mexicana*	6.29	6.00	6.11	2.70	10.00
W) South African *Linum*	6.21	6.04	6.10	3.49	9.06
X) *Virginiana* clade	6.15	5.90	5.94	3.06	9.73
Y) *Linum mexicanum* group	3.08	2.85	2.86	1.09	5.64
Z) section *Syllinum*	2.53	2.36	2.38	0.92	4.41
A1) *Linum rupestre* group	2.04	1.89	1.90	0.71	3.70

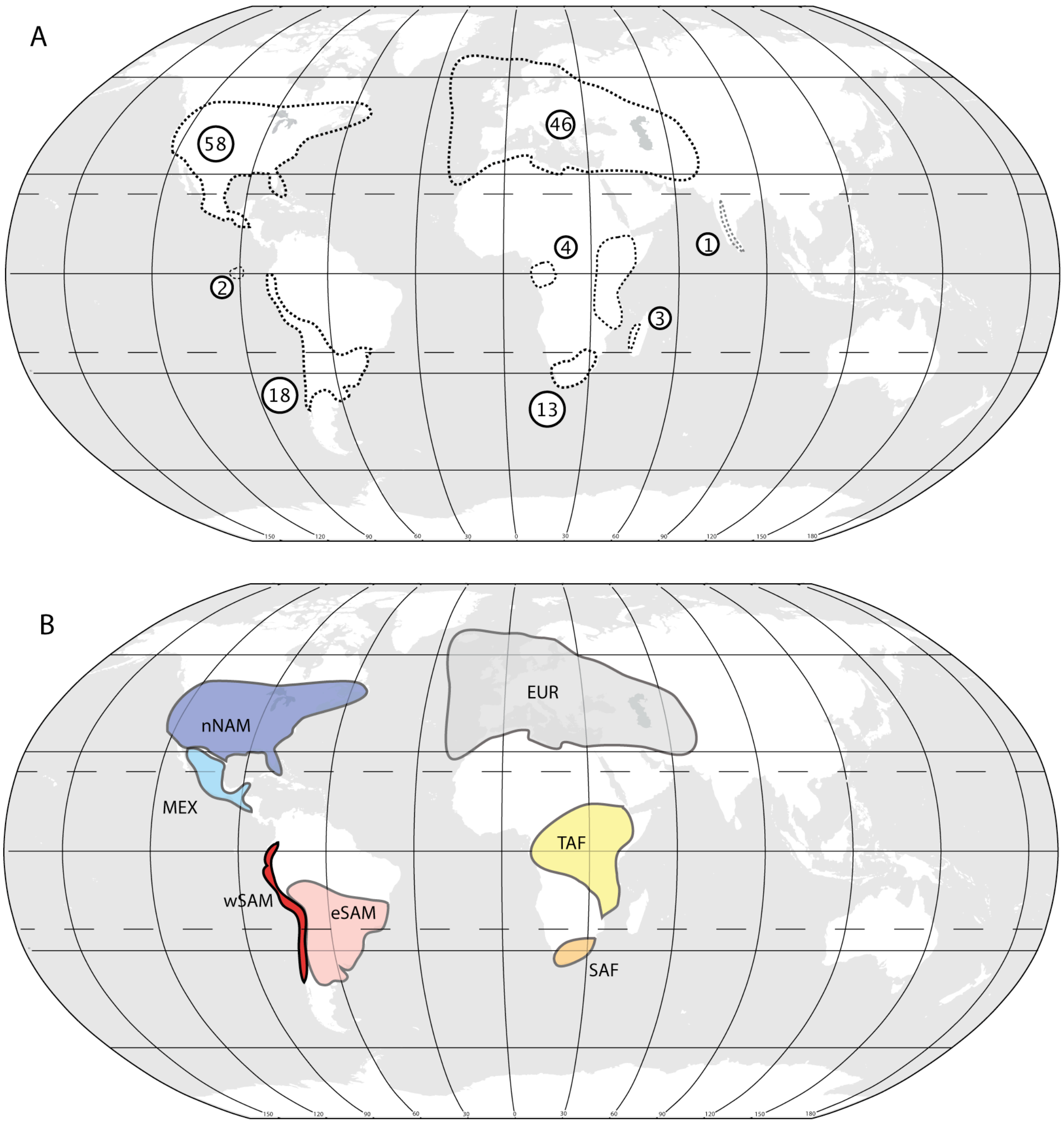

Fig 4.1. Distribution maps for yellow-flowered clade. A) Composite distribution of the "yellow-flowered" flaxes (including *Linum* sections *Linopsis*, *Syllinum*, and *Cathartolinum*, and the segregate genera *Cliococca*, *Hesperolinon*, *Radiola*, and *Sclerolinon*), and approximate number of species in each area. B) Major geographic areas to which species included in this study were assigned. EUR= Eurasia, nNAM= North America north of Mexico, MEX=Mexico endemic, wSAM=South America west of the Andes, eSAM=South America east of the Andes, TAF=Tropical/Central/East Africa, SAF=South Africa.

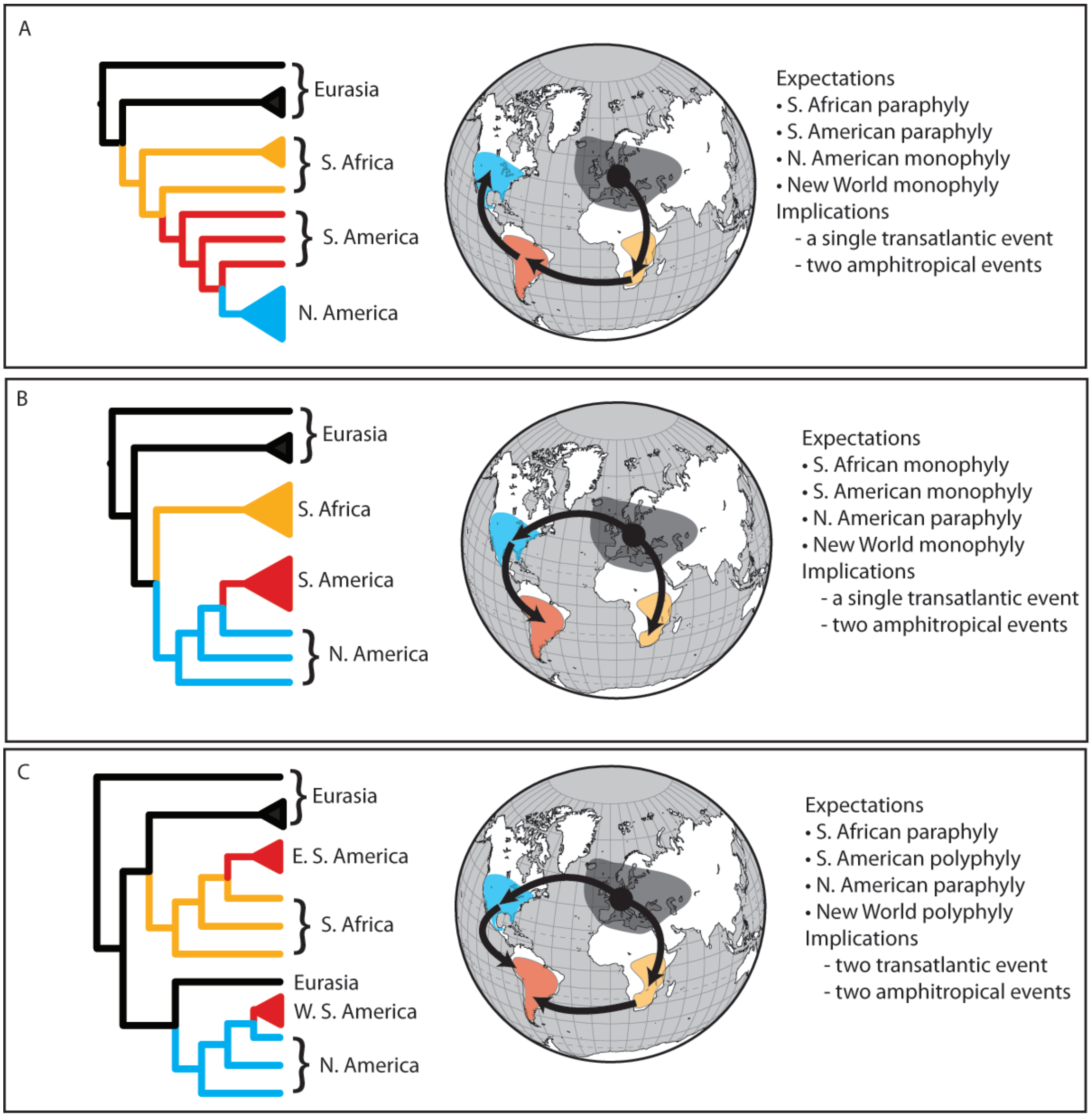

Fig. 4.2. Hypothetical historical biogeographic scenarios for yellow-flowered *Linum*, with simplified phylogenetic expectations. A) A South African origin of New World *Linum* might imply paraphyly for the South African taxa, with American taxa nested among them. B) A single amphi-Atlantic disjunction and independent Old and New world amphitropical events could imply monophyly for both South American and South African groups, and paraphyly of North American linums. C) More complex scenarios involving multiple trans-Atlantic events could result in paraphyly or polyphyly of species groups on multiple continents.

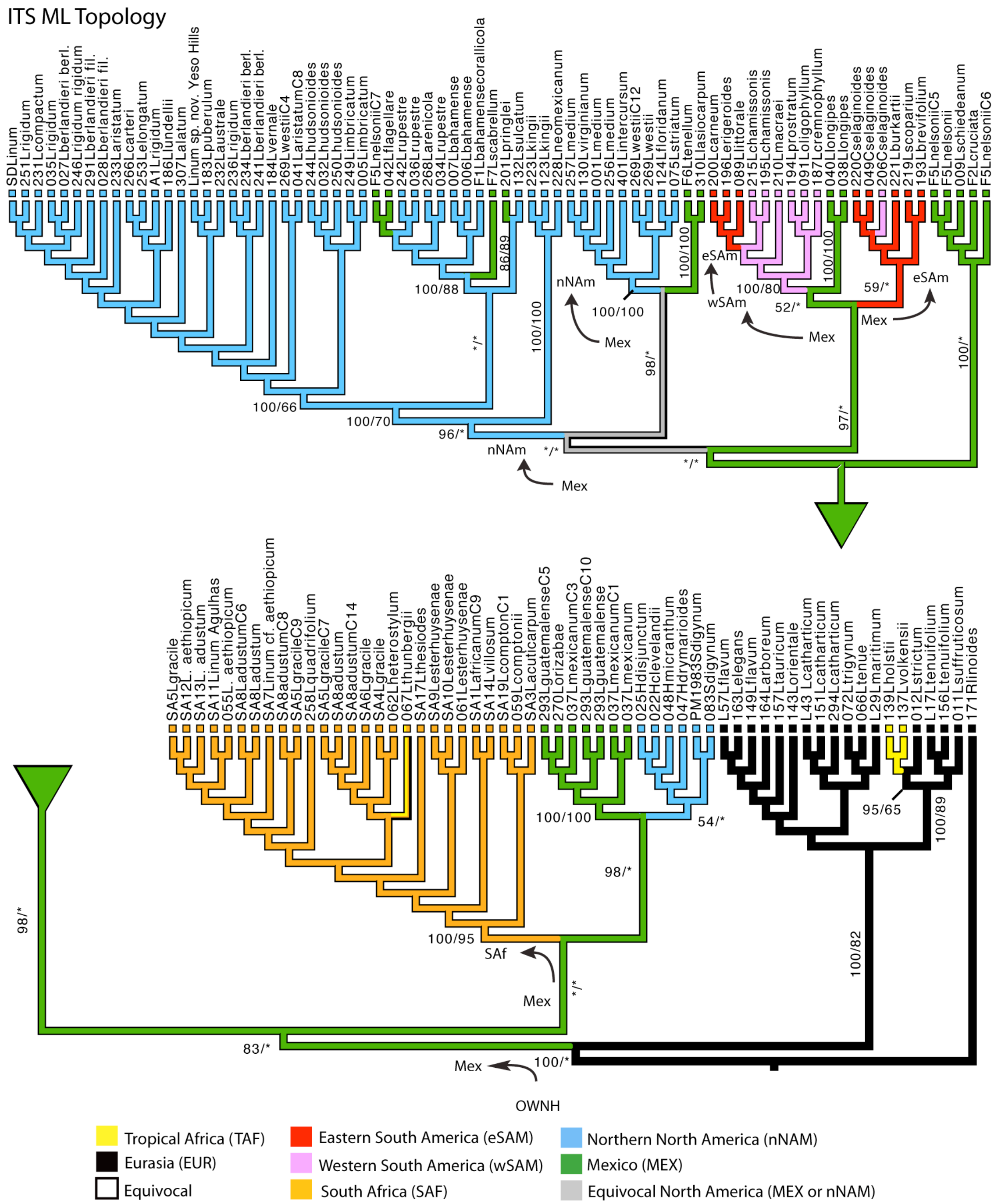

Fig. 4.3. Parsimony mapping of geographic areas onto the ITS maximum likelihood topology. Bayesian posterior probabilities (as %) and ML bootstrap % above branches (relevant nodes only). Values below 50% indicated by *.

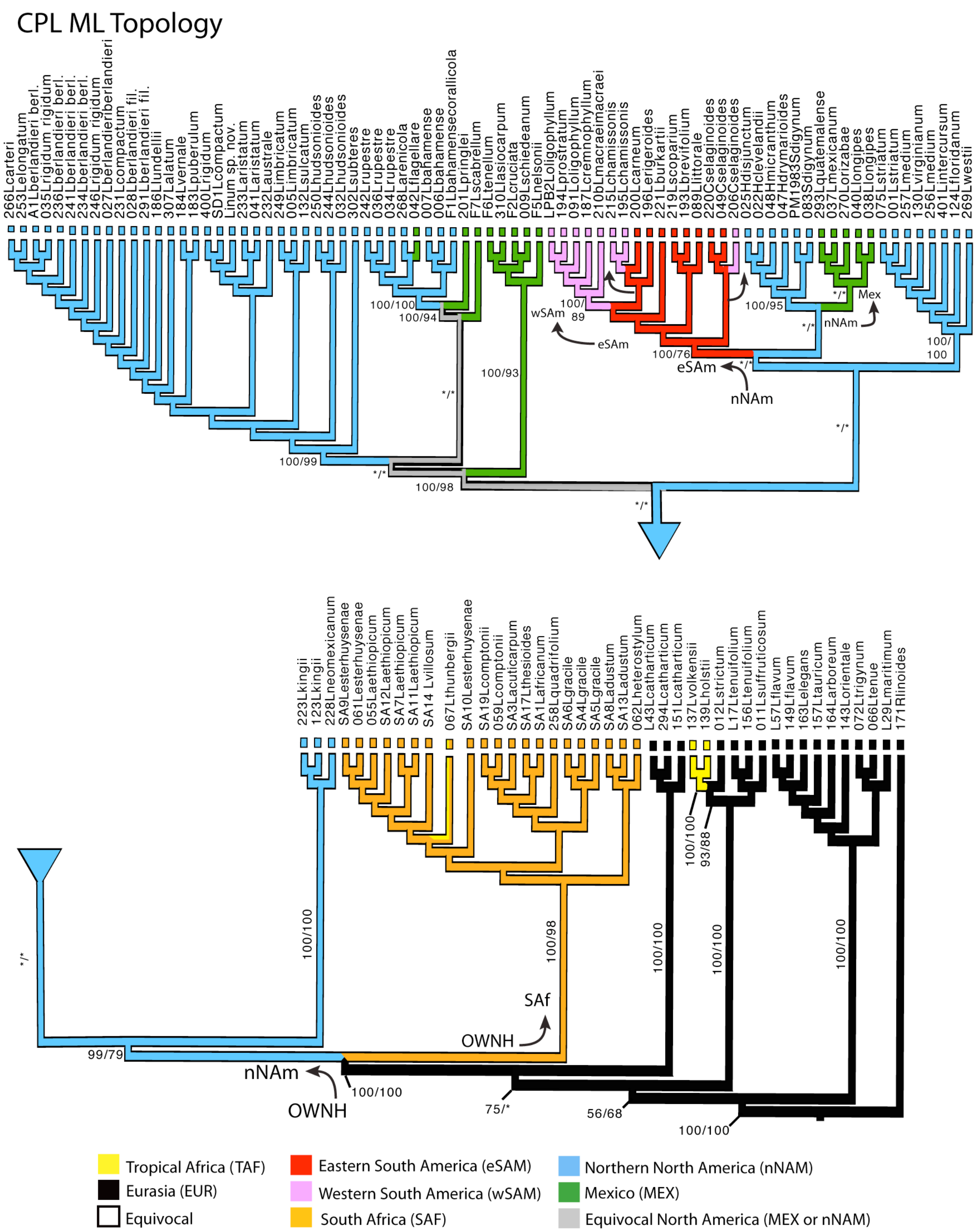

Fig. 4.4. Parsimony mapping of geographic areas onto the Chloroplast (CPL) maximum likelihood topology. Bayesian posterior probabilities (as %) and ML bootstrap % above branches (relevant nodes only). Values below 50% indicated by *.

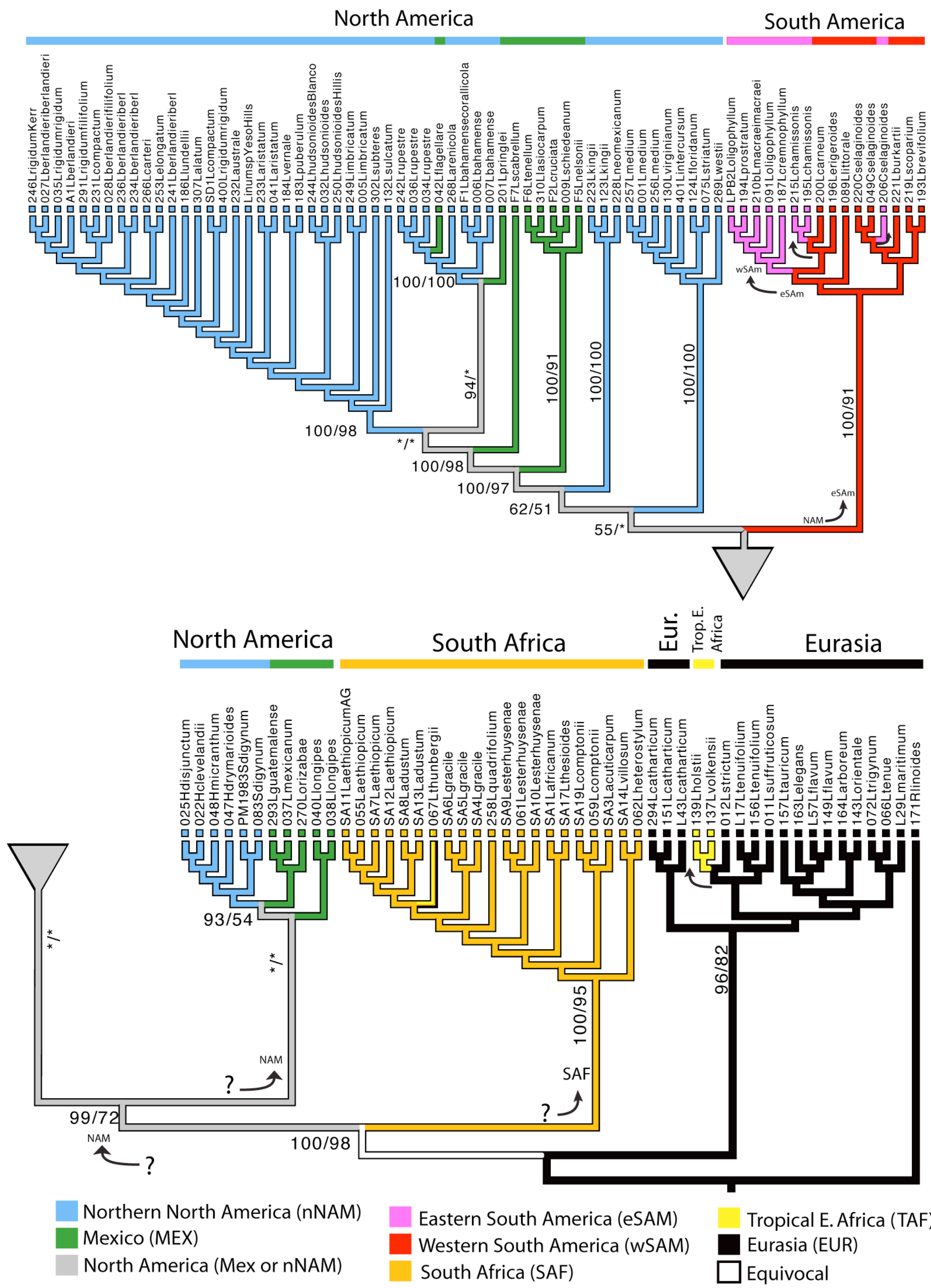

Fig 4.5: Parsimony mapping of biogeographic areas on combined (unreduced) CPL+ITS molecular topology. Bayesian posterior probabilities (as %) and ML bootstrap % above branches (for relevant nodes only). Values below 50% indicated by *.

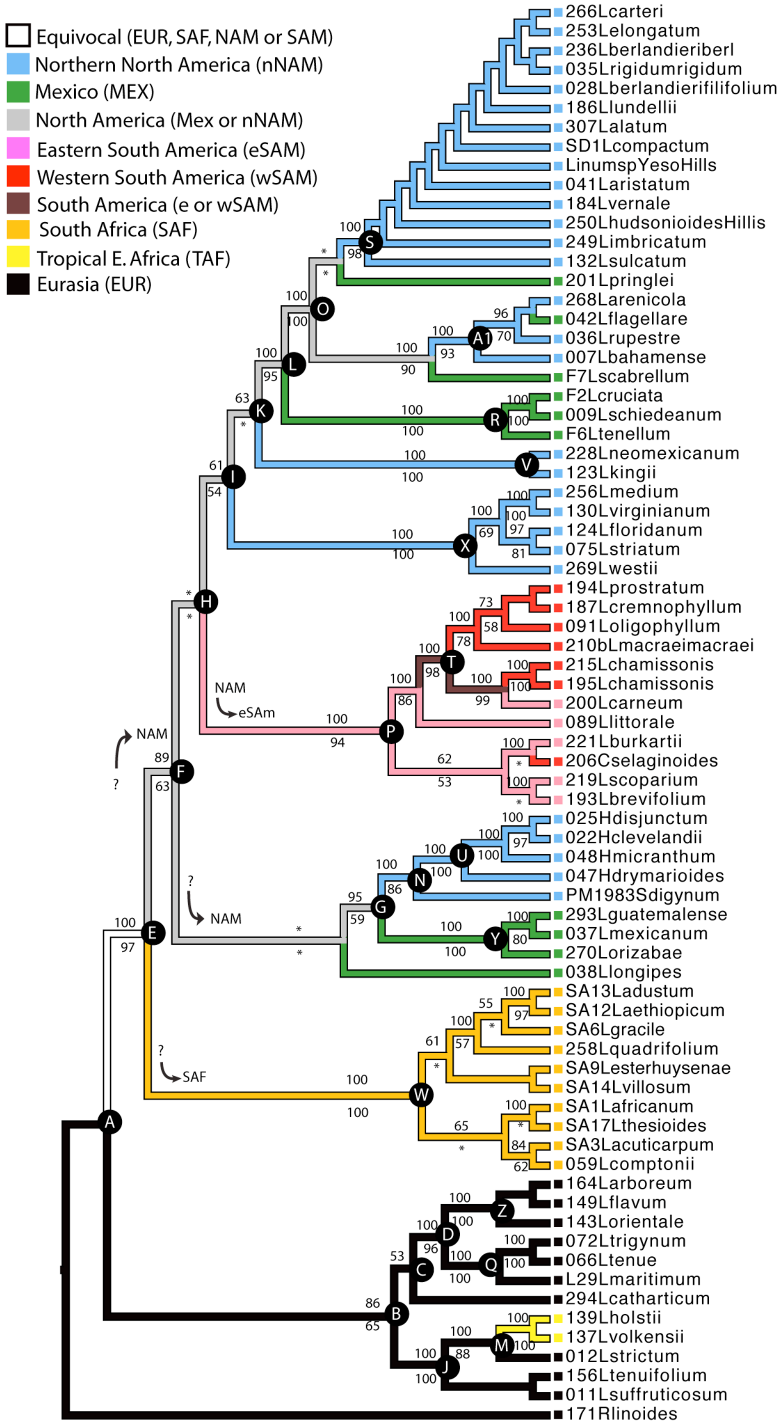

Fig. 4.6. Optimal ML topology for reduced data matrix, with parsimony mapping of geographic areas. Bayesian PP (as %) above branches, ML bootstrap below (<50% indicated by *). Lettered nodes correspond to nodes for which divergence times were estimated in BEAST, indicated in Table 4.3 and Fig. 4.6.

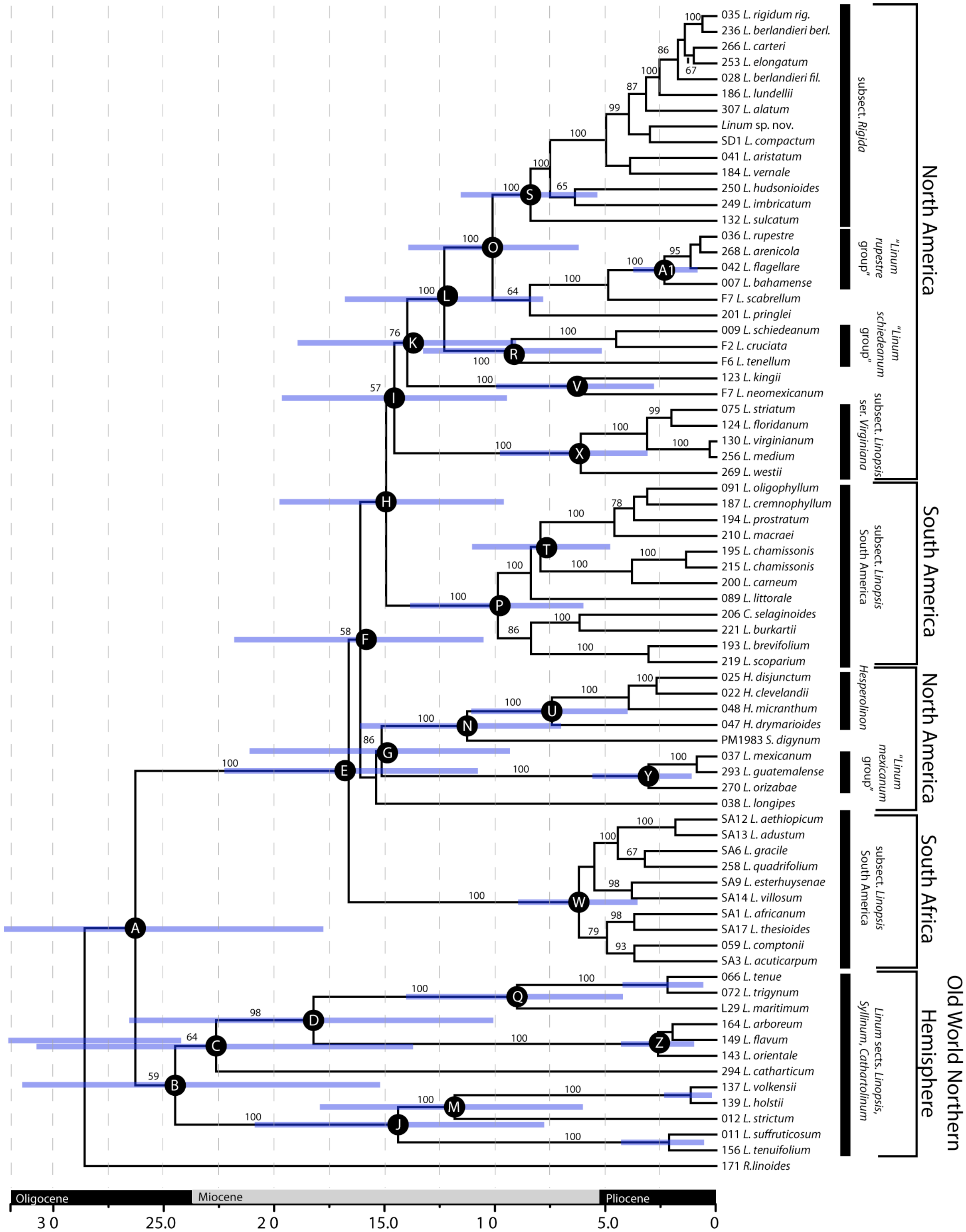

Fig. 4.7. Majority-rule consensus of trees sampled during BEAST analysis, rooted with *R. linoides*, with node heights adjusted to mean divergence times. Posterior probabilities above branches (as %, values < 50 not shown). Bars indicate 95% confidence interval around mean divergence time for each node. Letters correspond to clades in Fig. 4.5 and Table 4.3.

Appendix A: *rbc*L and *mat*K alignment, Chapter 2

*rbc*L (1-1293), *mat*K (1294-.)

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                          111111111122222222223333333333444444444455555555556666666666777
Taxon/Node       123456789012345678901234567890123456789012345678901234567890123456789012
-----------------------------------------------------------------------------------------
L. lewisii       TATAAATTAACTTATTATACTCCTGAATATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
L. perenne       TATAAATTAACTTATTATACTCCTGAATATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
L. pratense      TATAAATTAACTTATTATACTCCTGAATATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
L. narbonense    TATAAATTAACTTATTATACTCCTGAATATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
C. selaginoides  TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
L. hirsutum      TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
L. hypericifoliumTATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
L. usitatissimum TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
L. nervosum      TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
L. bienne        TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
L. monogynum     ----AATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
L. suffruticosum TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACAGATATCTTGGCAGCATTCCGAGTAACT
H. clevelandii   TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
H. disjunctum    TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
L. berlandieri   TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
L. rupestre      TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
D. pentagyna     TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGCTACTGATATCTTGGCAGCATTCCGAGTAACT
R. indica        TATAAATTAACTTATTATACTCCTGACTATSAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
H. drymarioides  TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
H. micranthum    TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
H. castaneifolia TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
S. digynum       --------AACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
L. oligophyllum  TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
H. neblinae      TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
H. mystax        TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
H. TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
H. gabunensis    TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
H. obtusifolia   TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
H. neocaledonic  -----------------------------------------------------------------AGTAACT
H. penicillanth  ----------------------------------CCAAAGCTACTGATATCTTGGCAGCA-----AGTAACT
H. spicata       -ATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
H. planchoni     ---AAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
H. orientalis    ----AATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
H. longipes      -ATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
L. volkensii     TATAAATTAACTTATTATACTCCTGAATATGAAACCAAAGATACGGATATCTTGGCAGCATTCCGAGTAACT
L. flavum        TATAAATTAACTTATTATACTCCTGAATATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
L. catharticum   TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
L. arboreum      TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
R. linoides      TATAAATTAACTTATTATACTCCGGAATATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
R. schomburgkii  ---AAATTGACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
R. monsalveae    TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
A. pubescens     TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
A. khasayama     TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
A. saxatilis     --TAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
L. comptonii     TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
H. humiriifolia  TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
I. griffithiana  ------------------------------------------------------------------------
P. magnifolia    ------------------------------------------------------------------------
T. sinensis      TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
T. ovoidea       TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
R. calophylla    TATAAATTAACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
AcalyphaInsulana TATAAATTGACTTATTTTACTCCTGACTATCAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
BalanopsPancheri TATAAATTGACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
BischofiaJavanic TATAAATTGACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
BruguieraGymnorh TATAAATTGACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
ByrsonimaCrassif TATAAATTGACTTATTATACTCCTGACTATGAAACCAAGGATACTGATATCTTGGCAGCATTTCGAGTAACT
MalpighiaGlabra  TATAAATTGACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAAGT
CamptostylusMann TATAAATTGACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
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ClusiaRosea       TATAAATTGACTTATTATACTCCAGAGTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
CratoxylumCochin  TATAAATTGACTTATTATACTCCTGAATATGAAACCAAAGATACTGATATCTTGGCAGCATTTCGAGTAACT
CtenolophonEngle  TATAAATTGACTTATTATACTCCGGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
DrypetesLittoral  TATAAATTAACTTATTACACTCCTGACTATGAAACCAAATATACTGATATCTTGGCAGCATTTCGGGTAACT
ElatineTriandra   TATAAATTGACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
ErythroxylumNovo  TATAAATTGACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
EuonymusHamilton  TATAAATTGACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
EuphorbiaHumifus  TATAAATTGACTTATTATACTCCTGAATATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
EuphroniaGuianen  TATAAATTGACTTATTATACTCCTGAGTATGAAACCAAAGACACTGATATCTTGGCAGCATTTCGAGTAACT
FlacourtiaIndica  TATAAATTGACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
FlueggeaVirosa    TATAAATTGACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTAGCAGCATTCCGAGTAACT
GarciniaSubellip  TATAAATTGACTTATTATACTCCTGAGTATGAAACAAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
GomphiaSerrata    TATAAATTGACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
HumiriaBalsamife  TATAAATTGACTTATTATACTCCGGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
IonidiumCommune   TATAAATTGACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
IrvingiaMalayana  TATAAATTGACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
IxonanthesReticu  TATAAATTGACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
JatrophaIntegerr  TATAAATTGACTTATTATACTCCTGAGTATCAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
KiggelariaAfrica  TATAAATTGACTTATTATACCCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
LacistemaAggrega  TATAAATTGACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
LunaniaParviflor  TATAAATTGACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTAGCAGCCTTCCGAGTAACT
ManihotEsculenta  TATAAATTGACTTATTATACTCCTGACTATCAAACCAAAGATACAGATATCTTGGCAGCATTCCGAGTAACT
OxalisCorniculat  TATAAATTGACTTATTATACTCCTGAGTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
PassifloraQuadra  TATAAATTGACTTATTATACTCCTGAATATAACCCCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
PhyllanthusFlexu  TATAAATTGACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTAGCAGCATTCCGAGTAACT
PimelodendronGri  TATAAATTGACTTATTATACTCCTGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
RicinusCommunis   TATAAATTGACTTATTATACTCCTGAATATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
SacoglottisSp     TATAAATTGACTTATTATACTCCGGACTATGAAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACT
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DatiscaCannabina  -----------------------------------------------------------------------ACT
QuercusRubra      TATAAATTGACTTATCATACTCCTGACTATCAAACCAAAGATACTGATATCTTGGCAGCCTTCCGAGTAACT


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Taxon/Node        34567890123456789012345678901234567890123456789012345678901234
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L. narbonense     CCTCAACCAGGAGTTCCGCCTGAGGAAGCGGGGGCGGCGGTAGCTGCTGAATCTTCTACTGGTACATGGACG
C. selaginoides   CCTCAACCAGGAGTTCCGCCTGAGGAAGCGGGGGCTGCGGTAGCTGCTGAATCTTCTACTGGTACGTGGACA
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L. nervosum       CCTCAACCAGGAGTTCCGCCTGAGGAAGCGGGGGCGGCGGTAGCTGCTGAATCTTCCACTGGTACGTGGACA
L. bienne         CCTCAACCAGGAGTTCCACCTGAGGAAGCGGGGGCGGCGGTAGCTGCTGAATCTTCTACTGGTACATGGACA
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L. suffruticosum  CCTCAACCAGGAGTTCCGCCTGAGGAAGCGGGGGCTGCGGTAGCTGCTGAATCTTCTACTGGTACGTGGACA
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H. disjunctum     CCTCAACCGGGAGTTCCGCCTGAGGAAGCGGGGGCTGCGGTAGCTGCTGAATCTTCTACTGGTACGTGGACA
L. berlandieri    CCTCAACCAGGAGTTCCGCCTGAGGAAGCGGGGGCTGCGGTAGCTGCTGAATCTTCTACTGGTACGTGGACA
L. rupestre       CCTCAACCAGGAGTTCCGCCTGAGGAAGCGGGGGCTGCGGTAGCTGCTGAATCTTCTACTGGTACGTGGACA
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H. castaneifolia  CCTCAACCAGGAGTTCCGCCTGAGGAAGCAGGGGCTGCGGTAGCTGCTGAATCTTCTACTGGTACATGGACA
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H. neblinae       CCTCAACCAGGAGTTCCGCCTGAGGAAGCAGGGGCTGCGGTAGCTGCTGAATCTTCTACTGGTACATGGACA
H. mystax         CCTCAACCAGGAGTTCCGCCTGAGGAAGCAGGGGCTGCGGTAGCTGCTGAATCTTCTACTGGTACATGGACA
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H. gabunensis     CCTCAACCAGGAGTTCCGCCTGAGGAAGCAGGGGCTGCGGTAGCTGCTGAATCTTCTACTGGTACATGGACA
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H. neocaledonic  CCTCAACCAGGAGTTCCGCCTGAGGAAGCAGGGGCTGCGGTAGCTGCTGAATCTTCTACTGGTACATGGACA
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R. linoides      CCTCAACCAGGAGTTCCGCCTGAGGAAGCGGGGGCTGCGGTAGCTGCTGAATCTTCTACTGGTACGTGGACA
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A. khasayama     CCTCAACCAGGAGTTCCGCCTGAGGAAGCGGGGGCTGCGGTAGCAGCTGAATCTTCTACTGGTACGTGGACA
A. saxatilis     CCTCAACCAGGAGTTCCGCCTGAGGAAGCGGGGGCTGCGGTAGCAGCTGAATCTTCTACTGGTACGTGGACA
L. comptonii     CCTCAACCAGGAGTTCCGCCTGAGGAAGCAGGGGCTGCGGTAGCTGCTGAATCTTCTACTGGTACGTGGACA
H. humiriifolia  CCTCAACCAGGAGTTCCGCCTGAGGAAGCAGGGGCTGCGGTAGCTGCTGAATCTTCTACTGGTACATGGACA
I. griffithiana  ------------------------------------------------------------------------
P. magnifolia    ------------------------------------------------------------------------
T. sinensis      CCTCAACCAGGAGTTCCGCCTGAGGAAGCGGGGGCTGCGGTAGCTGCTGAATCTTCTACTGGTACGTGGACA
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Taxon/Node       567890123456789012345678901234567890123456789012345678901234567890123456
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L. perenne       ACCGTGTGGACCGACGGGCTTACCAGCCTTGATCGTTATAAAGGACGATGCTACCACATTGAACCCGTTGCC
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L. narbonense    ACTGTGTGGACCGACGGGCTTACCAGTCTTGATCGTTATAAAGGACGATGCTACCACATTGAACCCGTTGCC
C. selaginoides  ACTGTGTGGACCGATGGGCTTACCAGCCTTGATCGTTATAAAGGACGATGCTACCACATTGAACCCGTTCCT
L. hirsutum      ACTGTGTGGACCGATGGGCTTACCAGCCTTGATCGTTATAAAGGACGATGCTACCACATTGAACCCGTTGCC
L. hypericifoliu ACTGTGTGGACCGATGGGCTTACCAGCCTTGATCGTTATAAAGGACGATGCTACCACATTGAACCCGTTGCC
L. usitatissimum ACTGTGTGGACCGACGGGCTTACCAGTCTTGATCGTTATAAAGGACGATGCTACCACATTGAACCCGTTGCC
L. nervosum      ACCGTGTGGACCGACGGGCTTACCAGCCTTGATCGTTATAAAGGACGATGCTACCACATTGAACCCGTTGCC
L. bienne        ACTGTGTGGACCGACGGGCTTACCAGTCTTGATCGTTATAAAGGACGATGCTACCACATTGAACCCGTTGCC
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L. suffruticosum ACTGTGTGGACCGATGGGCTTACCAGCCTTGATCGTTATAAAGGACGATGCTACCACATTGAACCCGTTCCC
H. clevelandii   ACTGTGTGGACCGATGGACTTACCAGCCTTGATCGTTATAAAGGACGATGCTACCACATTGAACCCGTTCCT
H. disjunctum    ACTGTGTGGACCGATGGACTTACCAGCCTTGATCGTTATAAAGGACGATGCTACCACATTGAACCCGTTCCT
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R. indica        ACTGTGTGGACCGATGGGCTTACCAGCCTTGATCGTTATAAAGGACGATGCTACCACATTGAACCCGTTGCC
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S. digynum       ACTGTGTGGACCGATGGGCTTACCAGCCTTGATCGTTATAAAGGACGATGCTACCACATTGAACCCGTTCCT
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H. mystax        ACTGTGTGGACCGATGGGCTTACCAGCCTTGATCGTTATAAAGGACGATGCTACCACATTGAACCCGTTGCC
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H. obtusifolia   ACTGTGTGGACCGATGGGCTTACCAGCCTTGATCGTTATAAAGGACGATGCTACTACATTGAACCCGTTGCC
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A. saxatilis     ACTGTGTGGACCGATGGGCTTACCAGCCTTGATCGTTATAAAGGACGATGCTACCACATTGAACCCGTTGCC
L. comptonii     ACTGTGTGGACCGATGGGCTTACCAGCCTTGATCGTTATAAAGGACGATGCTACCACATTGAACCCGTTCCT
H. humiriifolia  ACTGTGTGGACCGATGGGCTTACCAGCCTTGATCGTTATAAAGGACGATGCTACCACATTGAACCCGTTGCC
I. griffithiana  ------------------------------------------------------------------------
P. magnifolia    ------------------------------------------------------------------------
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HumiriaBalsamife ACTGTGTGGACTGATGGGCTTACCAGTCTTGATCGTTATAAAGGACGATGCTACCACATCGAGCCCGTTGCT
IonidiumCommune  ACTGTGTGGACCGACGGGCTTACCAGTCTTGATCGTTATAAAGGACGATGCTACGACATCGAGCCTGTTGCT
IrvingiaMalayana ACTGTGTGGACCGATGGACTTACTAGTCTTGATCGTTATAAGGGAAGATGCTACCACATTGAGCCCGTTGCT
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AlbiziaTomenosaJ ACTGTGTGGACCGATGGGCTTACCAGTCTTGATCGTTACAAAGGACGATGCTACCACATCGAGTCCGTTGCT
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Taxon/Node       789012345678901234567890123456789012345678901234567890123456789012345678
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L. perenne       GGAGAAGAAAGTCAATTTATTGCTTATGTAGCTTACCCCTTAGACCTTTTTGAAGAAGGTTCTGTTACTAAC
L. pratense      GGAGAAGAAAGTCAATTTATTGCTTATGTAGCTTACCCCTTAGACCTTTTTGAAGAAGGTTCTGTTACTAAC
L. narbonense    GGAGAAGAAAGTCAATTTATTGCTTATGTAGCTTACCCCTTAGACCTTTTTGAAGAAGGTTCTGTTACTAAC
C. selaginoides  GGAGAAGAAAGTCAATTTATTGCTTATGTAGCTTACCCCTTAGACCTTTTTGAAGAAGGTTCTGTTACTAAC
L. hirsutum      GGAGAAGAAAGTCAATTTATTGCTTATGTAGCTTACCCCTTAGACCTTTTTGAAGAAGGTTCTGTTACTAAC
L. hypericifoliumGGAGAAGAAAGTCAATTTATTGCTTATGTAGCTTACCCCTTAGACCTTTTTGAAGAAGGTTCTGTTACTAAC
L. usitatissimum GGAGAAGAAAGTCAATTTATTGCTTATGTAGCTTACCCCTTAGACCTTTTTGAAGAAGGTTCTGTTACTAAC
L. nervosum      GGAGAAGAAAGTCAATTTATTGCTTATGTAGCTTACCCCTTAGACCTTTTTGAAGAAGGTTCTGTTACTAAC
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H. clevelandii   GGAGAAGAAAGTCAATTTATTGCTTATGTAGCTTACCCCTTAGACCTTTTTGAAGAAGGTTCTGTTACTAAC
H. disjunctum    GGAGAAGAAAGTCAATTTATTGCTTATGTAGCTTACCCCTTAGACCTTTTTGAAGAAGGTTCTGTTACTAAC
L. berlandieri   GGAGAAGAAAGTCAATTTATTGCTTATGTAGCTTACCCCTTAGACCTTTTTGAAGAAGGTTCTGTTACTAAC
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D. pentagyna     GGAGAAGAAAATCAATATATTGCTTATGTAGCTTACCCCTTAGACCTTTTTGAAGAAGGTTCTGTTACTAAC
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H. obtusifolia   GGAGAAGAAAATCAATATATTGCTTATGTAGCTTACCCCTTAGACCTTTTTGAAGAAGGTTCTGTTACTAAC
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L. comptonii      GGAGAAGAAAGTCAATTTATTGCTTATGTAGCTTACCCCTTAGACCTTTTTGAAGAAGGTTCTGTTACTAAC
H. humiriifolia   GGAGAAGAAAATCAATATATTGCTTATGTAGCTTACCCCTTAGACCTTTTTGAAGAAGGTTCTGTTACTAAC
I. griffithiana   ------------------------------------------------------------------------
P. magnifolia     ------------------------------------------------------------------------
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D. pentagyna     ATGTTTACTTCCATTGTGGGTAATGTATTTGGGTTCAAAGCCCTACGCGCCCTACGTCTGGAGGATTTGCGA
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I. griffithiana  ------------------------------------------------------------------------
P. magnifolia    ------------------------------------------------------------------------
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QuercusRubra     ATGTTTACTTCCATTGTGGGTAATGTATTTGGATTCAAGGCCCTGCGCGCTCTACGTCTGGAGGATTTGCGA


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Taxon/Node       123456789012345678901234567890123456789012345678901234567890123456789012
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L. narbonense    ATCCCTCCTGCTTATTCTAAAACTTTCCAAGGCCCGCCTCACGGGATTCAAGTTGAGAGAGATAAATTGAAC
C. selaginoides  ATCCCTGTTGCTTATGTGAAAACTTTCCAAGGCCCGCCTCACGGGATTCAAGTTGAGAGAGATAAATTGAAC
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H. clevelandii   ATCCCTGTTGCTTATGTGAAAACTTTCCAAGGCCCGCCTCACGGGATTCAAGTTGAGAGAGATAAATTGAAC
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S. digynum       ATCCCTGCTGCTTATACTAAAACTTTCCAANNNNNNNNNNNNNCGGGATTCAAGTTGAGAGAGATAAATTGAAC
L. oligophyllum  ATCCCTGTTGCTTATRTKAAAACTTTCCAAGGYCCGCCTCACGGGATTCAAGTTGAGAGAGATAAATTGAAC
H. neblinae      ATCCCTCCTGCTTATTCTAAAACTTTCCAAGGCCCGCCTCACGGCATTCAAGTTGAGAGAGATAAATTGAAC
H. mystax        ATCCCTCCTGCTTATTCTAAAACTTTCCAAGGCCCGCCTCACGGCATTCAAGTTGAGAGAGATAAATTGAAC
H. busseana      ATCCCTCCTGCTTATTCTAAAACTTTCCAAGGCCCGCCTCACGGCATTCAAGTTGAGAGAGATAAATTGAAC
H. gabunensis    ATCCCTCCTGCTTATACTAAAACTTTCCAAGGCCCGCCTCACGGCATTCAAGTTGAGAGAGATAAATTGAAC
H. obtusifolia   ATCCCTCCTGCTTATTCTAAAACTTTCCAAGGCCCGCCTCACGGCATTCAAGTTGAGAGAGATAAATTGAAC
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R. monsalveae    ATCCCTCCTGCTTATTCTAAAACTTTCCAAGGCCCGCCTCACGGCATTCAAGTTGAGAGAGATAAATTGAAC
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A. pubescens      ATCCCTCCTGCTTATACTAAAACTTTCCAAGGTCCGCCTCACGGGATTCAAGTTGAGAGAGATAAATTGAAC
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H. humiriifolia   ATCCCTCCTGCTTATTCTAAAACTTTCCAAGGCCCGCCTCACGGCATTCAAGTTGAGAGAGATAAATTGAAC
I. griffithiana   ----------------------CTTTCCAAGGTCCGCCTCACGGCATTCAAGTTGAGAGAGATAAATTGAAC
P. magnifolia     -----------------TAAAACTTTCCAAGGTCCGCCTCACGGCATTCAAGTTGAGAGAGATAAATTGAAC
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Taxon/Node       5678901234567890123456789012345678901234567890123456789012345678901234567890123456
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L. perenne       GCTGTTTATGAATGTCTCCGTGGTGGACTTKATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
L. pratense      GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
L. narbonense    GCTGTTTATGAATGTCTTCGYGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
C. selaginoides  GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
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L. nervosum      GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
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L. monogynum     GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
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L. berlandieri   GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
L. rupestre      GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
D. pentagyna     GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
R. indica        GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
H. drymarioides  GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
H. micranthum    GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
H. castaneifolia GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
S. digynum       GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
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H. neblinae      GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
H. mystax        GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
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H. orientalis    GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
H. longipes      GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
L. volkensii     GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCTCAACCATTT
L. flavum        GCTGTTTATGAATGTCTYCGTGGTGGACTTKATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
L. catharticum   GCTGTTTATGAATGTCTCCGYGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
L. arboreum      GCTGTTTATGAATGTCTTCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
R. linoides      GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
R. schomburgkii  GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
R. monsalveae    GCTGTTTATGAATGTCTCCGYGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
A. pubescens     GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
A. khasayama     GCTGTTTATGAATGTCTCCGCGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
A. saxatilis     GCTGTTTATGAATGTCTCCGCGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
L. comptonii     GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
H. humiriifolia  GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
I. griffithiana  GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
P. magnifolia    GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAGAACGTGAACTCCCAACCATTT
T. sinensis      GCTGTTTATGAATGTCTCCGCGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
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T. ovoidea       GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
R. calophylla    GCTGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
AcalyphaInsulana GCCGTTTATGAATGTCTACGCGGTGGACTTGATTTTACCAAAGATGATGAGAACGTAAACTCCCAACCATTT
BalanopsPancheri GCAGTTTATGAATGTCTCCGCGGTGGACTTTATTTTACCAAAGATGATGAGAATGTGAACTCCCAACCATTT
BischofiaJavanic GCTGTTTATGAATGTCTTCGCGGTGGACTTGATTTTACCAAAGATGATGAGAATGTGAACTCCCAACCATTT
BruguieraGymnorh GCAGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAGAACGTGAATTCACAACCATTT
ByrsonimaCrassif GCTGTTTATGAATGTCTACGCGGTGGACTTGATTTTACCAAAGACGATGAGAACGTGAACTCCCAACCATTT
MalpighiaGlabra  GCTGTTTATGAATGTCTACGCGGTGGACTTGATTTTACCAAAGACGACGAGAACGTGAACTCCCAACCATTT
CamptostylusMann GCAGTTTATGAATGTCTCCGCGGCGGACTTGATTTTACCAAAGATGATGAGAACGTGAACTCCCAACCATTT
ClusiaRosea      GCAGTTTATGAATGTCTCCGCGGTGGACTTGATTTTACAAAAGATGATGAGAACGTGAACTCCCAACCATTT
CratoxylumCochin GCAGTTTATGAATGTCTTCGCGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
CtenolophonEngle GCAGTTTATGAATGTCTTCGCGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAACCATTT
DrypetesLittoral GCGGTTTATGAATGTCTCCGCGGTGGGCTTGATTTTACCAAAGATGATGAGAACATAAACTCCCAACCATTT
ElatineTriandra  GCAGTTTATGAATGTCTCCGCGGTGGACTTGATTTTACCAAAGATGATGAGAACGTGAACTCCCAACCATTT
ErythroxylumNovo GCAGTTTATGAATGTCTCCGCGGTGGGCTTGATTTTACCAAAGATGATGAGAACGTGAACTCCCAACCATTT
EuonymusHamilton GCAGTTTATGAATGTCTCCGCGGTGGACTTGATTTTACCAAAGATGATGAGAACGTAAACTCCCAACCATTT
EuphorbiaHumifus GCGGTTTATGAATGTCTTCGCGGTGGACTTGATTTTACCAAAGACGATGAGAACGTGAACTCTCAACCATTT
EuphroniaGuianen GCGGTTTATGAATGTCTTCGCGGTGGACTTGATTTTACGAAAGATGATGAGAATGTGAACTCCCAACCATTT
FlacourtiaIndica GCAGTTTATGAATGTCTACGTGGTGGACTTGATTTTACCAAAGATGATGAGAACGTGAACTCCCAACCATTT
FlueggeaVirosa   GCTGTTTATGAATGTCTTCGCGGTGGACTTGATTTTACCAAAGACGATGAAAACGTAAACTCCCAACCATTT
GarciniaSubellip GCAGTTTATGAATGTCTCCGCGGTGGACTTGATTTTACAAAAGATGATGAAAACGTGAACTCCCAACCATTT
GomphiaSerrata   GCTGTTTATGAATGTCTCCGCGGTGGACTTGATTTTACCAAAGATGATGAGAATGTGAACTCCCAACCATTT
HumiriaBalsamife GCAGTTTATGAATGTCTCCGCGGTGGACTTGATTTTACCAAAGATGATGAGAACGTGAACTCCCAACCATTT
IonidiumCommune  GCTGTTTATGAGTGTCTCCGTGGTGGACTTGATTTTACTAAAGATGATGAGAATGTGAACTCCCAACCATTT
IrvingiaMalayana GCAGTTTATGAATGTCTCCGCGGTGGGCTTGATTTTACGAAAGATGATGAGAACGTGAATTCCCAACCATTT
IxonanthesReticu GCAGTTTATGAATGTCTCCGCGGTGGACTTGATTTTACCAAAGATGATGAGAACGTGAACTCCCAACCATTT
JatrophaIntegerr GCGGTTTATGAATGTCTTCGCGGTGGACTTGATTTTACCAAAGATGATGAGAACGTGAATTCCCAACCATTT
KiggelariaAfrica GCAGTTTATGAATGTCTCCGCGGTGGACTTGATTTTACCAAAGATGATGAGAATGTGAACTCCCAACCATTT
LacistemaAggrega GCAGTTTATGAATGTCTACGCGGTGGACTTGATTTTACCAAAGATGATGAGAACGTGAACTCCCAACCATTT
LunaniaParviflor GCAGTTTATGAATGTCTACGCGGTGGACTTGATTTTACCAAAGATGATGAGAACGTGAACTCCCAACCGTTT
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OxalisCorniculat GCAGTTTATGAATGTCTTCGCGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCTCAACCATTT
PassifloraQuadra GCTGTTTATGAGTGTCTCCGCGGTGGACTTGATTTTACCAAAGATGATGAGAACGTGAACTCCCAACCATTT
PhyllanthusFlexu GCTGTTTATGAATGTCTTCGCGGTGGACTTGATTTTACCAAAGACGATGAAAACGTAAACTCCCAACCATTT
PimelodendronGri GCGGTCTATGAATGTCTTCGCGGTGGACTTGATTTTACCAAAGATGATGAGAACGTGAACTCCCAACCATTT
RicinusCommunis  GCAGTTTATGAATGTCTACGCGGTGGACTTGATTTTACCAAAGATGATGAGAACGTGAACTCCCAACCATTT
SacoglottisSp    GCAGTTTATGAATGTCTCCGCGGTGGACTTGATTTTACCAAAGATGATGAGAACGTGAACTCCCAACCATTT
ScageaOligostemo GCTGTTTATGAATGTCTCCGCGGTGGACTTGATTTTACCAAAGATGATGAGAATGTGAATTCCCAACCATTT
TrigoniaBolivian GCGGTTTATGAATGTCTTCGCGGTGGACTTGATTTTACCAAAGATGATGAGAATGTGAACTCCCAGCCATTT
AlbiziaTomenosaJ GCGGTTTATGAATGTCTCCGTGGTGGACTTGATTTTACCAAAGATGATGAGAATGTTAATTCCCAACCATTT
KerriaJaponica   GCAGTTTACKAATGTCTCCGCGGTGGACTTGATTTTACCAAAGATGATGAGAATGTTAATTCCCAACCATTT
DatiscaCannabina GCTGTTTATGAATGTCTACGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAATTCCCAACCATTT
QuercusRubra     GCAGTTTATGAATGTCTCCGCGGTGGGCTTGATTTTACCAAAGATGATGAGAACGTTAATTCCCAACCATTT


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                 777888888888889999999999000000000011111111112222222222333333333344444444
Taxon/Node       789012345678901234567890123456789012345678901234567890123456789012345678
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L. lewisii       ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCAATTTATAAATCACAGGCCGAAACGGGGGAAATC
L. perenne       ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCWATTTATAAAKCACAGGCCGAAACRGGGGAAATC
L. pratense      ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCAATTTATAAATCACAGGCCGAAACGGGGGAAATC
L. narbonense    ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCAATTTATAAATCACAGGCCGAAACAGGGGAAATC
C. selaginoides  ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCGATTTATAAATCACAGGCCGAAACAGGGGAAATC
L. hirsutum      ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCAATTTATAAATCACAGGCCGAAACGGGGGAAATC
L. hypericifoliumATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCAATTTATAAATCACAGGCCGAAACGGGGGAAATC
L. usitatissimum ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCAATTTATAAATCACAGGCCGAAACAGGGGAAATC
L. nervosum      ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCAATTTATAAATCACAGGCCGAAACAGGGGAAATC
L. bienne        ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCAATTTATAAATCACAGGCCGAAACAGGGGAAATC
L. monogynum     ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCAATTTATAAATCACAGGCCGAAACAGGGGAAATC
L. suffruticosum ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCTATTTATAAATCACAGGCCGAAACAGGGGAAATC
H. clevelandii   ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCTATTTATAAATCACAGGCCGAAACAGGGGAAATC
H. disjunctum    ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCTATTTATAAATCACAGGCCGAAACAGGGGAAATC
L. berlandieri   ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCTATTTATAAATCACAGGCCGAAACAGGGGAAATC
L. rupestre      ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCTATTTATAAATCACAGGCCGAAACAGGGGAAATC
D. pentagyna     ATGCGTTGGAGAGACCGTTTCGTATTTTGTGCCGAAGCAATTTATAAAGCACAGGCCGAAACAGGTGAAATC
R. indica        ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCAATTTATAAATCACAGGCCGAAACAGGGGAAATC
H. drymarioides  ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCTATTTATAAATCACAGGCCGAAACAGGGGAAATC
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H. micranthum    ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCAATTTATAAAGCACAGGCCGAAACAGGGGAAATC
H. castaneifolia ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCACTTTATAAAGCACAGGCCGAAACAGGTGAAATC
S. digynum       ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCTATTTATAAATCACAGGCCGAAACAGGGGAAATC
L. oligophyllum  ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCTATTTATAAATCACAGGCCGAAACAGGGGAAATC
H. neblinae      ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCACTTTATAAAGCACAGACCGAAACAGGTGAAATC
H. mystax        ATGCGTTGGAGAGACCGTTTCTTTTTTNGTGCCGAAGCAATTTATAAAGCACAGGCCGAAA-----------
H. busseana      ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCACTTTATAAAGCACAGGCCGAAACAGGTGAAATC
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H. penicillanth  ATGCGTTGGAGAGACCGTTTCGTATTTTGTGCCGAAGCAATTTATAAAGCACAGGCCGAAACAGGTGAAATC
H. spicata       ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCACTTTATAAAGCACAGGCCGAAACAGGTGAAATC
H. planchoni     ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCACTTTATAAAGCACAGGCCGAAACAGGTGAAATC
H. orientalis    ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCACTTTATAAAGCACAGGCCGAAACAGGTGAAATC
H. longipes      ATGCGTTGGAGAGACCGTTTCGTTTTTTGTGCCGAAGCAATTTATAAAGCACAGGCCGAAACAGGTGAAATC
L. volkensii     ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCTATTTATAAATCACAGGCCGAAACAGGGGAAATC
L. flavum        ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCTATTTWTAAAKCACAGGCCGAAACWGGGGAAATC
L. catharticum   ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCTATTTATAAATCACAGGCCGAAACAGGGGAAATC
L. arboreum      ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCTATTTATAAATCACAGGCCGAAACAGGGGAAATC
R. linoides      ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCTATTTATAAATCACAGGCCGAAACAGGGGAAATT
R. schomburgkii  ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCACTTTTTAAAGCACAGGCCGAAACAGGTGAAATC
R. monsalveae    ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCWMTTTATAAAGCACAGGCCGAAACAGGTGAAATC
A. pubescens     ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAGGCAATTAATAAATCACAGGCCGAAACAGGGGAAATC
A. khasayama     ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCAATTTATAAATCACAGGCCGAAACAGGGGAAATC
A. saxatilis     ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCAATTTATAAATCACAGGCCGAAACAGGGGAAATC
L. comptonii     ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCTATTTATAAATCACAGGCCGAAACAGGGGAAATC
H. humiriifolia  ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCACTTTATAAAGCACAGACCGAAACAGGTGAAATC
I. griffithiana  ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCACTTTATAAAGCACAGGCCGAAACAGGTGAAATC
P. magnifolia    ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCACTTTTTAAAGCACAGGCCGAAACAGGTGAAATC
T. sinensis      ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCAATTTATAAATCACAGGCCGAAACAGGGGAAATC
T. ovoidea       ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCAATTTATAAATCACAGGCCGAAACAGGGGAAATC
R. calophylla    ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCACTTTATAAAGCACAGGCCGAAACAGGTGAAATC
AcalyphaInsulana ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCAATTTTTAAGTCACAGGCTGAAACAGGCGAAATC
BalanopsPancheri ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCAATTTATAAAGCACAGGCTGAAACAGGTGAAATC
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BruguieraGymnorh ATGCGCTGGAGAGATCGTTTCTTATTTTGTGTCGAAGCAATTTATAAAGCACAGGCGGAAACAGGTGAAATC
ByrsonimaCrassif ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCACTTTATAAAGCACAGGCGGAAACGGGTGAAATC
MalpighiaGlabra  ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCAATTTATAAATCACAGGCGGAAACAGGTGAAATC
CamptostylusMann ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCACTTTATAAAGCACAGGCCGAAACAGGTGAAATC
ClusiaRosea      ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCTGAAGCAATTTTTAAAGCACAGGCTGAAACAGGTGAAATC
CratoxylumCochin ATGCGATGGAGGGATCGGTTCTTATTTTGTGCTGAAGCAATTTATAAGTCACAGTCTGAAACAGGTGAAATC
CtenolophonEngle ATGCGTTGGAGAGACCGTTTCGTATTTTGTGCCGAAGCAATTTATAAAGCACAGGCTGAAACAGGTGAAATC
DrypetesLittoral ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCTGAAGCACTTTATAAAGCACAGGCTGAAACAGGCGAAATC
ElatineTriandra  ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCCATTTTTAAATCACAGGCAGAAACAGGTGAAATC
ErythroxylumNovo ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCTGAAGCACTTTATAAAGCACAGGCGGAAACTGGTGAAATC
EuonymusHamilton ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCGCTTTATAAAGCACAGGCTGAAACAGGTGAAATC
EuphorbiaHumifus ATGCGTTGGAGAGACCGCTTTTTATTTTGTGCCGAAGCAATTTTTAAATCACAGGCTGAAACAGGTGAAATC
EuphroniaGuianen ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCAGAAGCAATTTATAAAGCACAAGCGGAAACAGGGGAAATC
FlacourtiaIndica ATGCGTTGGAGAGATCGTTTCTTATTTTGTGCCGAAGCACTTTATAAAGCACAGGCTGAAACCGGTGAAATC
FlueggeaVirosa   ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCTGAAGCAATTTATAAAGCACAAGCTGAAACAGGTGAAATC
GarciniaSubellip ATGCGTTGGAGAGACCGCTTCTTGTTTTGTGCCGAAGCAATTTTTAAAGCACAGGCCGAAACAGGTGAAATC
GomphiaSerrata   ATGCGTTGGAGAGACCGTTTCCTATTTTGTGCCGAAGCACTTTTTAAAGCACAGGCGGAAACGGGTGAAATC
HumiriaBalsamife ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCACTTTATAAAGCACAGGCTGAAACAGGTGAAATC
IonidiumCommune  ATGCGTTGGAGGGACCGTTTCTTATTTTGTGCCGAAGCGATTTATAAATCACAGGCTGAAACAGGTGAAATC
IrvingiaMalayana ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCGCTTTTTAAAGCACAGGCCGAAACAGGGGAAATC
IxonanthesReticu ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCTCTTTTTAAAGCACAGGCGGAAACAGGTGAAATT
JatrophaIntegerr ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCAATTTATAAAGCACAGGCTGAAACAGGTGAAATC
KiggelariaAfrica ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCTCTTTATAAAGCACAGGCTGAAACAGGTGAAATC
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LunaniaParviflor ATGCGTTGGAGAGATCGTTTCGTATTTTGTGCCGAAGCACTTTATAAAGCACAGTCTGAGACAGGTGAAATC
ManihotEsculenta ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCAATTTATAAAGCACAGGCTGAAACAGGTGAAATC
OxalisCorniculat ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCTCTTTTTAAATCACAGTCTGAAACAGGTGAAATC
PassifloraQuadra ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCAATTTATAAAGCACAGGCGGAAACTGGTGAAATT
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PimelodendronGri ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCACTTTTTAAATCACAGGCTGAAACAGGTGAAATC
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SacoglottisSp    ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCACTTTATAAAGCACAGGCTGAAACAGGTGAAATC
ScageaOligostemo ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCACTTTATAAAGCACAGGCCGAAACAGGTGAAATC
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TrigoniaBolivian ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCACTTTATAAAGCACAGGCTGAAACAGGTGAAATC
AlbiziaTomenosaJ ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCACTTTATAAAGCACAGGCCGAAACAGGTGAAATC
KerriaJaponica   ATGCGTTGGAGAGACCGTTTCTTATTTTGTGCCGAAGCACTTTATAAAGCACAGGCTGAAACAGGTGAAATC
DatiscaCannabina ATGCGTTGGAGAGACCGTTTCCTATTTTGTGCGGAACGAATTTATAAATCACAGGCTGAAACAGGTGAAATC
QuercusRubra     ATGCGTTGGAGAGACCGTTTCGTATTTTGTGCCGAAGCAATTTATAAAGCGCAGGCTGAAACAGGTGAAATC


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Taxon/Node       901234567890123456789012345678901234567890123456789012345678901234567890
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L. lewisii       AAAGGACATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGAGCTGTATTTGCTAGAGAA
L. perenne       HAAGGRCATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGRGCTGTATTTGCYAGAGAA
L. pratense      AAAGGACATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGAGCTGTATTTGCTAGAGAA
L. narbonense    AAAGGACATTATTTGAATGCTACTGCGGGTACATGCGAAGAAATGATAAAAAGGGCTGTATTTGCTAGAGAA
C. selaginoides  AAGGGGCATTATTTGAATGCTACCGCGGGTACATGTGAAGACATGATGAAAAGGGCTGTATTTGCCAGAGAA
L. hirsutum      AAAGGACATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGGGCTGTATTTGCTAGAGAA
L. hypericifoliumAAAGGACATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGGGCTGTATTTGCTAGAGAA
L. usitatissimum AAAGGACATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATAAAAAGGGCTGTATTTGCTAGAGAA
L. nervosum      AAAGGACATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGGGCTGTATTTGCTAGAGAA
L. bienne        AAAGGACATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATAAAAAGGGCTGTATTTGCTAGAGAA
L. monogynum     AAAGGACATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATAAAAAGGGCTGTATTTGCTAGAGAA
L. suffruticosum AAAGGGCATTATTTGAATGCTACCGCGGGTACATGTGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
H. clevelandii   AAGGGGCATTATTTGAATGCTACTGCGGGTACATGTGAAGAAATGATGAAAAGGGCTATATTTGCCAGAGAA
H. disjunctum    AAGGGGCATTATTTGAATGCTACTGCGGGTACATGTGAAGAAATGATGAAAAGGGCTATATTTGCCAGAGAA
L. berlandieri   AAGGGGCATTATTTGAATGCTACCGCGGGTACATGTGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
L. rupestre      AAGGGGCATTATTTGAATGCTACCGCGGGTACATGTGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
D. pentagyna     AAAGGGCATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
R. indica        AAAGGGCATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
H. drymarioides  AAGGGGCATTATTTGAATGCTACTGCGGGTACATGTGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
H. micranthum    AAGGGGCATTATTTGAATGCTACTGCGGGTACATGCGAAGAAATGATCAAAAGGGCTGTATTTCCCAGAGAA
H. castaneifolia AAAGGGCATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
S. digynum       AAGGGGCATTATTTGAATGCTACCGCGGGTACATGTGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
L. oligophyllum  AAGGGGCATTATTTGAATGCTACCGCGGGTACATGTGAAGACATGATGAAAAGGGCTGTATTTGCCAGAGAA
H. neblinae      AAAGGGCATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
H. mystax        ------------------------------------------------------------------------
H. busseana      AAAGGGCATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
H. gabunensis    AAAGGGCATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
H. obtusifolia   AAAGGGCATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
H. neocaledonic  AAAGGGCATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
H. penicillanth  AAAGGGCATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
H. spicata       AAAGGGCATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
H. planchoni     AAAGGGCATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
H. orientalis    AAAGGGCATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
H. longipes      AAAGGGCATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
L. volkensii     AAAGGGCATTATTTGAATGCTACCGCGGGTACATGTGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
L. flavum        AAAGGGCATTATTTGAATGCTACCGCGGGTACATGTGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
L. catharticum   AAAGGGCATTATTTGAATGCTACCGCGGGTACATGTGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
L. arboreum      AAAGGGCATTATTTGAATGCTACCGCGGGTACATGTGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAG
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R. schomburgkii  AAAGGGCATTATTTGAATGCTACCGCAGGTACATGCGAAGAAATGATGAAAAGGGCTGTATTTGCCAGAGAA
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L. comptonii     AAGGGGCATTATTTGAATGCTACCGCGGGTACATGTGAAGACATGATGAAAAGGGCTGTATTTGCCAGAGAA
H. humiriifolia  AAAGGGCATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
I. griffithiana  AAAGGGCATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATGAAAAGGGCTATATTTGCCAGAGAA
P. magnifolia    AAAGGGCATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATGAAAAGGGCTGTATTTGCCAGAGAA
T. sinensis      AAAGGGCATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
T. ovoidea       AAAGGGCATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
R. calophylla    AAAGGGCATTATTTGAATGCTACCGCGGGTACATGCGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
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BischofiaJavanic AAGGGGCATTATTTGAATGCTACTGCGGGTACATGTGAAGAAATGATCAAAAGGGCTGTATTTGCCAGAGAA
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MalpighiaGlabra  AAAGGGCATTATTTGAATGCTACTGCAGGTACATGCGAAGAAATGATGAAAAGGGCTATATTTGCCAGAGAA
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Taxon/Node       123456789012345678901234567890123456789012345678901234567890123456789012
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L. perenne       TTGGGAGTTCCYATYRTAATGCACGACTACTTAACAGGGGGATTCACCGCKAATACTAGCTTGGCTCATTAT
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L. narbonense    TTGGGAGTTCCTATCGTAATGCACGACTACTTAACAGGGGGATTCACCGCGAATACTAGCTTGGCTCATTAT
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L. hypericifoliumTTGGGAGTTCCTATCGTAATGCACGACTACTTAACAGGGGGATTCACCGCGAATACTAGCTTGGCTCATTAT
L. usitatissimum TTGGGAGTTCCTATCGTAATGCACGACTACTTAACAGGGGGATTCACCGCGAATACTAGCTTGGCCCATTAT
L. nervosum      TTGGGAGTTCCTATCGTAATGCACGATTACTTAACAGGGGGATTCACCGCGAATACTAGCTTGGCTCATTAT
L. bienne        TTGGGAGTTCCTATCGTAATGCACGACTACTTAACAGGGGGATTCACCGCGAATACTAGCTTGGCCCATTAT
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H. clevelandii   TTGGGAGTTCCTATCGTAATGCACGACTACTTAACAGGGGGATTCACCGCTAATACTAGCTTGGCTCATTAT
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R. indica        TTGGGAGCTCCTATCATAATGCACGACTACTTAACAGGGGGATTCACCGCTAATACTAGCTTGGCTCATTAT
H. drymarioides  TTGGGAGTTCCTATCGTAATGCACGACTACTTAACAGGGGGATTCACCGCTAATACTAGCTTGGCTCATTAT
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H. mystax        ------------------------------------------------------------------------
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L. arboreum      TTGGGAGTTCCTATCGTAATGCACGACTACTTAACAGGGGGATTCACCGCTAATACTAGTTTGGCTCATTAT
R. linoides      TTGGGAGTTCCTATCGTAATGCACGACTACTTAACAGGGGGATTCACCGCTAATACTAGCTTGGCTCATTAT
R. schomburgkii  TTGGGAGTTCCTATCGTAATGCACGACTACTTAACAGGGGGATTCACTGCTAATACTAGCTTGGCTCATTAT
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H. humiriifolia  TTGGGAGTTCCTATCGTAATGCACGACTACTTAACAGGGGGATTCACTGCTAATACTAGCTTGGCTCATTAT
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L. bienne         TGCCGAGATAATGGTTTACTTCTTCACATCCATCGCGCAATGCATGCAGTTATTGATAGACAAAAGAATCAC
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D. pentagyna      TGCCGAGATAATGGTTTACTTCTTCACATCCATCGCGCAATGCATGCAGTTATTGATAGACAGAAGAATCAT
R. indica         TGCCGAGATAACGGTTTACTTCTTCACATCCATCGCGCAATGCATGCAGTTATTGATAGACAAAAGAATCAC
H. drymarioides   TGCCGAGATAATGGTTTACTTCTTCACATCCACCGCGCAATGCATGCAGTTATTGATAGACAAAAGAATCAC
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H. neblinae       TGCCGAGATAATGGTTTACTTCTTCACATCCATCGCGCAATGCATGCAGTTATTGATAGACAGAAGAATCAT
H. mystax         ------------------------------------------------------------------------
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L. catharticum    TGCCGAGATAATGGTTTACTTCTTCACATCCACCGCGCAATGCATGCAGTTATTGATAGACAAAAGAATCAT
L. arboreum       TGCCGAGATAATGGTTTACTTCTTCACATCCACCGTGCAATGCATGCAGTTATTGATAGACAAAAGAATCAC
R. linoides       TGCCGAGATAATGGTTTACTTCTTCACATCCATCGTGCAATGCATGCAGTTATTGATAGACAAAAGAATCAC
R. schomburgkii   TGCCGAGATAATGGTTTACTTCTTCACATCCATCGCGCAATGCATGCAGTTATTGATAGACAGAAGAATCAT
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P. magnifolia     TGCCGAGATAATGGTTTACTTCTTCACATCCATCGCGCAATGCATGCAGTTATTGATAGACAGAAGAATCAT
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T. ovoidea        TGCCGAGATAATGGTTTACTTCTTCACATCCATCGCGCAATGCATGCAGTTATTGATAGACAAAAGAATCAC
R. calophylla     TGCCGAGATAATGGTTTACTTCTTCACATCCATCGCGCAATGCATGCAGTTATTGATAGACAGAAGAATCAT
AcalyphaInsulana TGCCGAGATAATGGTTTACTTCTTCACATTCACCGCGCAATGCATGCAGTTATTGATAGACAAAAGAATCAC
BalanopsPancheri TGTCGAGATAATGGTTTACTTCTTCACATCCATCGCGCAATGCATGCAGTTATTGATAGACAGAAGAATCAT
BischofiaJavanic TGCCGAGATAATGGTTTACTTCTTCACATCCATCGCGCAATGCATGCAGTTATTGATAGACAAAAGAACCAC
BruguieraGymnorh TGTCGAGATAATGGTTTACTTCTTCACATTCATCGCGCAATGCATGCAGTTATTGATAGACAGAAGAATCAT
ByrsonimaCrassif TGCCGAGATAATGGTTTACTTCTGCACATCCATCGCGCAATGCATGCAGTTATTGATAGACAGAAGAATCAT
MalpighiaGlabra   TGCCGAGATAATGGTTTACTTCTGCACATCCACCGCGCAATGCATGCAGTTATTGATAGACAGAAGAATCAT
CamptostylusMann TGCCGAGATAATGGGTTACTTCTTCATATCCATCGCGCAATGCATGCAGTTATTGATAGACAGAAGAATCAT
ClusiaRosea       TGCCGAGATAATGGTTTACTTCTTCACATTCATCGCGCAATGCATGCAGTTATTGATAGACAAAAGAATCAT
CratoxylumCochin TGCCGAGATAATGGTTTACTTCTTCACATCCACCGCGCAATGCATGCAGTTATTGATAGACAAAAGAATCAT
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DrypetesLittoral TGCCGAGATAATGGTTTACTTCTTCACATCCATCGCGCAATGCATGCAGTTATTGATAGACAGAAGAATCAT
ElatineTriandra   TGCCGAGATAATGGTTTACTTCTTCACATCCACCGCGCAATGCATGCAGTTATTGATAGACAGAAGAATCAT
ErythroxylumNovo TGTCGAGATAATGGTTTACTTCTTCACATCCATCGCGCAATGCATGCAGTTATTGATAGACAGAAAAATCAT
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EuonymusHamilton TGCCGAGATAATGGTCTACTTCTTCACATTCACCGTGCAATGCATGCAGTTATTGATAGACAGAAAAATCAT
EuphorbiaHumifus TGTCGAGATAATGGTTTACTTCTTCACATTCACCGCGCAATGCATGCAGTTATTGATAGACAGAAGAATCAT
EuphroniaGuianen TGTCGAGATAATGGTTTACTTCTTCACATCCATCGCGCAATGCACGCAGTTATTGATAGACAGAAGAATCAT
FlacourtiaIndica TGCCGAGATAATGGTTTACTTCTTCACATCCATCGCGCAATGCATGCAGTTATTGATAGACAGAAAAATCAT
FlueggeaVirosa   TGCCGAGATAATGGTTTACTTCTTCACATCCACCGCGCAATGCATGCAGTTATTGATAGACAGAAGAACCAT
GarciniaSubellip TGCCGAGATAATGGTTTACTTCTTCACATCCATCGCGCAATGCATGCGGTTATTGATAGACAAAAGAATCAT
GomphiaSerrata   TGCCGAGATAATGGTTTACTTCTTCACATCCATCGCGCAATGCATGCAGTTATTGATAGACAGAAGAATCAT
HumiriaBalsamife TGCCGAGATAATGGTTTACTTCTTCACATCCATCGCGCAATGCATGCAGTTATTGATAGACAGAAGAATCAT
IonidiumCommune  TGCCGAGATAATGGGTTACTTCTTCACATCCATCGCGCAATGCATGCAGTTATTGATAGACAGAAAAATCAC
IrvingiaMalayana TGCCGAGATAATGGTTTACTTCTTCACATCCACCGCGCAATGCATGCAGTTATTGATAGACAGAAGAATCAT
IxonanthesReticu TGCCGAGATAATGGTTTACTTCTTCACATCCATCGCGCAATGCATGCAGTTATTGATAGACAGAAGAATCAT
JatrophaIntegerr TGCCGTGATAATGGTTTACTTCTTCACATTCACCGCGCAATGCATGCAGTTATTGATAGACAGAAGAATCAT
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RicinusCommunis  TGCCGAGATAATGGTTTACTTCTTCACATTCACCGCGCAATGCATGCAGTTATTGATAGACAGAAGAATCAT
SacoglottisSp    TGCCGAGATAATGGTTTACTTCTTCACATCCATCGCGCAATGCATGCAGTTATTGATAGACAGAAGAATCAT
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TrigoniaBolivian TGCCGGGATAATGGTTTACTTCTTCACATCCATCGCGCAATGCATGCAGTTATTGATAGGCAGAAGAATCAT
AlbiziaTomenosaJ TGCCGAGATAATGGTCTACTTCTTCATATCCATCGTGCAATGCATGCAGTTATCGATAGACAGAAGAATCAT
KerriaJaponica   TGCCGAGATAATGGTTTACTTCTTCACATCCACCGTGCAATGCATGNNGTTATTGATAGACAGAAGANTCAT
DatiscaCannabina TGCCGAGATAATGGTCTACTTCTTCACATTCACCGTGCAATGCATGCAGTTATTGATAGACAGAAGAATCAC
QuercusRubra     TGCCGAGATAATGGTCTACTTCTTCACATCCATCGTGCCATGCATGCAGTTATTGATCGACAGAAGAATCAT


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Taxon/Node       567890123456789012345678901234567890123456789012345678901234567890123456
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L. lewisii       GGTATACACTTCCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
L. perenne       GGTATACACTTCCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
L. pratense      GGTATACACTTCCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
L. narbonense    GGTATACACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
C. selaginoides  GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
L. hirsutum      GGTATACACTTCCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
L. hypericifolium-------------------------------------------------------------------------
L. usitatissimum GGTATACACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
L. nervosum      GGTATACACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
L. bienne        GGTATACACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
L. monogynum     GGTATACACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
L. suffruticosum GGTATACACTTCCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTC
H. clevelandii   GGTATACACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
H. disjunctum    GGTATACACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
L. berlandieri   GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGGGGAGATCATATTCACTCAGGTACCGTA
L. rupestre      GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
D. pentagyna     GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTTTGTCTGGTGGAGATCATATTCACGCAGGTACCGTA
R. indica        GGTATACACTTTCGTGTACTAGCTAAAGCGTTACGTCTGTCTGGTGGAGATCATATTCACTCWGGTACCGTA
H. drymarioides  GGTATACACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
H. micranthum    GGTATACACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
H. castaneifolia GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTTTGTCTGGTGGAGATCATATTCACGCAGGTACCGTA
S. digynum       GGTATGCACTTCCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
L. oligophyllum  GGTATACACTTCCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
H. neblinae      GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACGCAGGTACCGTA
H. mystax        ------------------------------------------------------------------------
H. busseana      GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTTTGTCTGGTGGAGATCATATTCACGCAGGTACCGTA
H. gabunensis    GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTTTGTCTGGTGGAGATCATATTCACGCAGGTACCGTA
H. obtusifolia   GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTTTGTCTGGTGGGGATCATATTCACGCAGGTACCGTA
H. neocaledonic  GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTTTGTCTGGTGGAGATCATATTCACGCAGGTACCGTA
H. penicillanth  GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTTTGTCTGGTGGAGATCATATTCACGCAGGTACCGTA
H. spicata       GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTTTGTCTGGTGGGGATCATATTCACGCAGGTACCGTA
H. planchoni     GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTTTGTCTGGTGGAGATCATATTCACGCAGGTACCGTA
H. orientalis    GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTTTGTCTGGTGGAGATCATATTCACGCAGGTACCGTA
H. longipes      GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTTTGTCTGGTGGAGATCATATTCACGCAGGTACCGTA
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L. volkensii     GGTATACACTTCCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
L. flavum        GGTATACACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACGCAGGTACCGTA
L. catharticum   GGTATACACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
L. arboreum      GGTATACACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
R. linoides      GGTATACACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCATTCAGGTACCGTA
R. schomburgkii  GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTCTGTCTGGTGGAGATCATATTCACGCAGGTACCGTA
R. monsalveae    GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTCTGTCTGGTGGAGATCATATTCACGCAGGTACCGTA
A. pubescens     GGTATACACTTTCGTGTACTAGCTAAAGCGTTACGTCTGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
A. khasayama     GGTATACACTTTCGTGTACTAGCTAAAGCGTTACGTCTGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
A. saxatilis     GGTATACACTTTCGTGTACTAGCTAAAGCGTTACGTCTGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
L. comptonii     GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
H. humiriifolia  GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACGCAGGTACCGTA
I. griffithiana  GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTTTGTCTGGTGGAGATCATATTCACGCAGGTACCGTA
P. magnifolia    GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTTTGTCTGGTGGAGATCATATTCACGCAGGTACCGTA
T. sinensis      GGTATACACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACGCAGGTACCGTA
T. ovoidea       GGTATACACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCAGGTACCGTA
R. calophylla    GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTCTGTCTGGTGGAGATCATATTCACGCAGGTACCGTA
AcalyphaInsulana GGTATGCATTTTCGTGTACTAGCTAAGGCGTTACGTATGTCTGGTGGAGATCATATTCACGCCGGTACCGTA
BalanopsPancheri GGTATGCACTTTCGTGTACTAGCTAAGGCCCTACGTATGTCTGGCGGAGATCATATTCACGCTGGTACCGTA
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ByrsonimaCrassif GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGCATGTCTGGTGGAGATCATATTCACGCGGGTACCGTA
MalpighiaGlabra  GGTATGCATTTTCGTGTACTAGCTAAAGGGTTACGCCTGTCTGGTGGAGATCATATTCACGCGGGTACTGTA
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ClusiaRosea      GGTATGCACTTTCGTGTACTAGCTAAAGCCTTACGTATGTCTGGGGGAGATCATATTCATGCTGGTACCGTA
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FlacourtiaIndica GGTATGCACTTTCGTGTACTAGCTAAGGCATTACGTTTGTCTGGTGGAGATCATATTCACGCTGGTACCGTA
FlueggeaVirosa   GGTATGCACTTCCGTGTACTAGCTAAGGCGTTACGTATGTCTGGTGGAGATCATATTCACGCCGGTACCGTA
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GomphiaSerrata   GGTATGCACTTTCGTGTACTAGCTAAGGCGTTACGTATGTCTGGTGGAGATCATATTCACGCTGGTACCGTA
HumiriaBalsamife GGTATGCACTTTCGTGTACTAGCTAAGGCGTTACGTCTGTCTGGTGGAGATCATATTCACGCTGGTACCGTA
IonidiumCommune  GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACGCAGGCACTGTA
IrvingiaMalayana GGTATGCACTTTCGTGTATTAGCTAAGGCGTTGCGTATGTCTGGTGGAGATCATATTCACGCCGGTACCGTA
IxonanthesReticu GGTATACACTTTCGTGTACTAGCTAAGGCCTTGCGTATGTCTGGCGGAGATCATATTCACGGTGGGACAGTA
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SacoglottisSp    GGTATGCACTTTCGTGTACTAGCTAAGGCGTTACGTCTGTCTGGTGGAGATCATATTCACGCTGGTACCGTA
ScageaOligostemo GGTATGCACTTTCGTGTACTAGCTAAGGCCTTACGTATGTCTGGCGGAGATCATATTCATGCTGGCACCGTA
TrigoniaBolivian GGTATGCACTTTCGTGTACTAGCTAAGGCCCTACGTATGTCTGGCGGAGATCATATTCACGCGGGTACTGTA
AlbiziaTomenosaJ GGTATGCACTTTCGTGTACTAGCTAAAGCGTTACGTTTGTCTGGTGGAGATCATATTCACGCTGGTACCGTA
KerriaJaponica   GGTATACACTTTCGTGTACTAGCTAAAGNNTTACGTATGTCTGGTGGAGATCATATACACTCTGGTACCGTA
DatiscaCannabina GGTATACACTTTCGTGTACTAGCTAAAGCGTTACGTATGTCTGGTGGAGATCATATTCACTCTGGTACCGTA
QuercusRubra     GGTATACACTTTCGTGTACTAGCTAAAGCATTACGTATGTCTGGTGGAGATCATATTCATGCCGGTACCGTA


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Taxon/Node       789012345678901234567890123456789012345678901234567890123456789012345678
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L. lewisii       GTAGGTAAACTGGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTATTGCGCGACGATTTTGTTGAA
L. perenne       GTAGGTAAACTGGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTATTGCGCGACGATTTTGTTGAA
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L. pratense      GTAGGTAAACTGGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTATTGCGCGACGATTTTGTTGAA
L. narbonense    GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTATTGCGCGACGATTTTGTTGAA
C. selaginoides  GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
L. hirsutum      GTAGGTAAACTTGAAGGGGAAAGAGAAATCACTTTGGGCTTTGTTGATTTACTGCGCGACGATTTTGTTGAA
L. hypericifolium-------------------------------------------------------------------------
L. usitatissimum GTAGGTAAACTTGAAGGTGAAAGAGAGATCACTTTGGGCTTTGTTGATTTATTACGCGACGATTTTGTTGAA
L. nervosum      GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTATTGCGCGACGATTTTGTCGAA
L. bienne        GTAGGTAAACTTGAAGGTGAAAGAGAGATCACTTTGGGCTTTGTTGATTTATTACGCGACGATTTTGTTGAA
L. monogynum     GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTATTACGCGACGATTTTGTTGAA
L. suffruticosum GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTGTTGAA
H. clevelandii   GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
H. disjunctum    GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
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L. rupestre      GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
D. pentagyna     GTAGGTAAACTTGAAGGGGAAAGAGACATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
R. indica        GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAC
H. drymarioides  GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTATTGCGTGATGATTTTATTGAA
H. micranthum    GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
H. castaneifolia GTAGGTAAACTTGAAGGGGAAAGGGAGATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTGTTGAA
S. digynum       GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
L. oligophyllum  GTAGGTAAACTKGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTATTGCGCGACGATTTTGTTGAA
H. neblinae      GTAGGTAAACTTGAAGGGGAAAGAGAGATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
H. mystax        ------------------------------------------------------------------------
H. busseana      GTAGGTAAACTTGAAGGGGAAAGGGAGATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTGTTGAA
H. gabunensis    GTAGGTAAACTTGAAGGGGAAAGGGAGATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTGTTGAA
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H. orientalis    GTAGGTAAACTTGAAGGGGAAAGGGAGATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTGTTGAA
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L. volkensii     GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTGTTGAA
L. flavum        GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTGTTGAA
L. catharticum   GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGYTTTGTTGATTTACTGCGTGATGATTTTATTGAA
L. arboreum      GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTGTTGAA
R. linoides      GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
R. schomburgkii  GTAGGTAAACTTGAAGGGGAAAGAGAGATCACTTTGGGCTTTGTTGATTTACTTCGTGATGATTTTATTGAA
R. monsalveae    GTAGGTAAACTTGAAGGGGAAAGAGAGATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTGTTGAA
A. pubescens     GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
A. khasayama     GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTGTTGAA
A. saxatilis     GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTGTTGAA
L. comptonii     GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
H. humiriifolia  GTAGGTAAACTTGAAGGGGAAAGAGAGATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
I. griffithiana  GTAGGTAAACTTGAAGGGGAAAGAGAGATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
P. magnifolia    GTAGGTAAACTTGAAGGGGAAAGAGAGATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
T. sinensis      GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
T. ovoidea       GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
R. calophylla    GTAGGTAAACTTGAAGGGGAAAGAGAGATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTGTTGAA
AcalyphaInsulana GTAGGTAAACTTGAAGGGGAAAGAGAAATCACTTTGGGCTTTGTTGATTTATTGCGTGATGATTTTATTGAA
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ByrsonimaCrassif GTAGGGAAACTTGAAGGGGAAAGAGAGATCACTTTAGGTTTTGTTGATTTACTGCGTGATGATTTTATTGAA
MalpighiaGlabra  GTAGGGAAACTTGAGGGGGAAAGAGATATCACTTTAGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
CamptostylusMann GTAGGTAAACTTGAAGGGGAAAGAGACATCACTTTGGGCTTTGTTGATTTACTACGTGATGATTTTGTTGAA
ClusiaRosea      GTAGGTAAACTTGAAGGTGAAAGAGAGATCACTTTGGGCTTTGTTGATTTACTGCGTTTGGATTTTATTGAA
CratoxylumCochin GTAGGTAAACTTGAAGGGGAAAGAGATATTACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
CtenolophonEngle GTAGGTAAACTTGAAGGAGAAAGAGACATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
DrypetesLittoral GTAGGTAAACTTGAAGGGGAAAGAGACATCACTTTGGGCTTTGTTGATTTACTCCGTGATGATTTTATTGAA
ElatineTriandra  GTAGGTAAACTTGAAGGGGAAAGAGAAATCACTCTGGGCTTTGTTGATTTACTGCGTGATGATTTTGTTGAA
ErythroxylumNovo GTAGGTAAACTTGAAGGTGAAAGAGAAATCACTTTGGGCTTTGTTGATTTACTTCGTGATGATTTTATTGAA
EuonymusHamilton GTAGGTAAACTTGAGGGTGAAAGAGATATCACTTTAGGCTTTGTTGATTTACTACGTGATGATTTTGTTGAA
EuphorbiaHumifus GTAGGTAAGCTTGAAGGAGAAAGAGAGATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
EuphroniaGuianen GTAGGTAAACTTGAAGGGGAAAGAGACATCACTTTAGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
FlacourtiaIndica GTAGGTAAACTTGAAGGGGAAAGAGACATAACTTTGGGTTTTGTTGATTTACTGCGTGATGATTTTGTTGAA
FlueggeaVirosa   GTAGGTAAACTTGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATCTACTGCGTGATGATTATGTTGAA
GarciniaSubellip GTAGGTAAACTTGAAGGTGAAAGAGAGATCACTTTGGGCTTTGTTGATTTACTGCGTTTGGATTTTATTGAA
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GomphiaSerrata    GTAGGTAAACTTGAAGGGGAAAGAGAGATCACTTTGGGCTTTGTTGATTTACTGCGCGATGATTTTATTGAA
HumiriaBalsamife  GTAGGTAAACTTGAAGGGGAAAGAGACATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
IonidiumCommune   GTGGGGAAACTAGAAGGGGAAAGAGATATCACTTTGGGCTTTGTTGATTTATTGCGTGATGATTTTATTGAA
IrvingiaMalayana  GTAGGTAAACTTGAAGGAGAAAGAGACATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
IxonanthesReticu  GTAGGTAAACTTGAAGGGGAAAGAGAAATAACTTTAGGTTTTGTTGATTTACTGCGTGATGATTTTATTGAA
JatrophaIntegerr  GTAGGTAAACTTGAAGGGGAAAGAGACATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
KiggelariaAfrica  GTAGGTAAACTTGAAGGGGAAAGAGACATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
LacistemaAggrega  GTAGGTAAACTTGAAGGGGAAAGAGACATCACTTTGGGATTTGTTGATTTACTGCGTGATGATTTTATTGAA
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OxalisCorniculat  GTAGGTAAACTTGAAGGGGAAAGAGAGATCACTTTAGGATTTGTTGATTTACTACGTGATGATTTTGTTGAA
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RicinusCommunis   GTAGGTAAACTTGAAGGGGAAAGAGACATCACTCTGGGCTTTGTTGATTTATTGCGTGATGATTTTATTGAA
SacoglottisSp     GTAGGTAAACTTGAAGGGGAAAGAGACATCACTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTGAA
ScageaOligostemo  GTAGGTAAACTTGAAGGGAGAAGAGAGNNNNNTTTGGGCTTTGTTGATTTACTGCGTGATGATTTTATTCAA
TrigoniaBolivian  GTAGGTAAACTTGAAGGGGAAAGAGACATCACTTTGGGCTTTGTTGATTTATTGCGTGATGATTTTATTGAA
AlbiziaTomenosaJ  GTAGGTAAACTTGAAGGGGAAAGAGAAATCACTTTAGGTTTTGTTGATTTACTACGTGATGATTATATTGAG
KerriaJaponica    GTAGGTAAACTTGAGGGGGAAAGAGAGATCACTTTAGGCTTTGTTGATTTACTACGTGATGATTTTATTGAA
DatiscaCannabina  GTAGGTAAACTTGAAGGGGAAAGAGAAATCACTTTAGGCTTTGTTGATTTACTACGTGATGATTTTATTGAA
QuercusRubra      GTAGGTAAACTTGAAGGGGAAAGAGAAATCACTTTAGGCTTTGTTGATTTACTACGTGATGATTATATTGAA


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                  011111111112222222222333333333344444444445555555555666666666677777777778
Taxon/Node        901234567890123456789012345678901234567890123456789012345678901234567890
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L. lewisii        AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCCTGCCCGTGGCTTCG
L. perenne        AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCCTGCCCGTGGCTTCG
L. pratense       AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCCTGCCCGTGGCTTCG
L. narbonense     AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCGGGTGTCCTGCCCGTGGCTTCG
C. selaginoides   AAAGATAGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGCGTCCTACCTGTAGCTTCG
L. hirsutum       AAAGATAGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCGGGTGTTCTGCCCGTGGCTTCG
L. hypericifolium------------------------------------------------------------------------
L. usitatissimum  AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCGGGTGTCCTGCCGGTGGCTTCG
L. nervosum       AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCGGGCGTCCTGCCCGTGGCTTCG
L. bienne         AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCGGGTGTCCTGCCGGTGGCTTCG
L. monogynum      AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCGGGTGTACTGCCCGTGGCTTCG
L. suffruticosum  AAAGATAGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGCGTCCTACCCGTAGCTTCA
H. clevelandii    AAAGATAGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGCGTCCTACCTGTAGCTTCG
H. disjunctum     AAAGATAGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGCGTCCTACCTGTAGCTTCG
L. berlandieri    AAAGATAGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGCGTCCTACCTGTAGCTTCG
L. rupestre       AAAGATAGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGCGTCCTACCTGTAGCTTCG
D. pentagyna      AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCTGGTGTCCTGCCCGTGGCTTCG
R. indica         AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCCTGCCCGTGGCTTCG
H. drymarioides   AAAGATAGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGCGTCCTACCTGTAGCTTCG
H. micranthum     AAAGATAGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGCGTCCTACCTGTAGCTTCG
H. castaneifolia  AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCCTGCCCGTGGCTTCG
S. digynum        AAAGATAGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGCGTCCTACCTGTAGCTTCG
L. oligophyllum   AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCCTGCCCGTGGCTTCG
H. neblinae       AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCCTGCCCGTGGCTTCG
H. mystax         ------------------------------------------------------------------------
H. busseana       AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCCTGCCCGTGGCTTCG
H. gabunensis     AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCCTGCCCGTGGCTTCG
H. obtusifolia    AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCTTGCCCGTGGCTTCG
H. neocaledonic   AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCTGGTGTCCTGCCCGTGGCTTCG
H. penicillanth   AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCTGGTGTCCTGCCCGTGGCTTCG
H. spicata        AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCTTGCCCGTGGCTTCG
H. planchoni      AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCCTGCCCGTGGCTTCG
H. orientalis     AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCCTGCCCGTGGCTTCG
H. longipes       AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCCTGCCCGTGGCTTCG
L. volkensii      AAAGATAGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGCGTCCTACCCGTAGCTTCG
L. flavum         AAAGATAGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGCGTCTTACCCGTAGCTTCG
L. catharticum    AAAGATAGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGCGTCCTACCCGTAGCTTCG
L. arboreum       AAAGATAGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGCGTCTTACCCGTAGCTTCG
R. linoides       AAAGATAGAAGCCGCGGATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCCTGCCCGTGGCTTCA
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R. schomburgkii  AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTATCCTGCCCGTGGCTTCG
R. monsalveae    AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCCTGCCCGTGGCTTCG
A. pubescens     AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCCTGCCCGTGGCTTCG
A. khasayama     AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCCTGCCCGTGGCTTCG
A. saxatilis     AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCCTGCCCGTGGCTTCG
L. comptonii     AAAGATAGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGCGTCCTACCTGTAGCTTCG
H. humiriifolia  AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCCTGCCCGTGGCTTCG
I. griffithiana  AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCCTGCCCGTGGCTTCG
P. magnifolia    AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCCTGCCCGTGGCTTCG
T. sinensis      AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTTTCTCTACCAGGTGTCTTGCCCGTGGCTTCG
T. ovoidea       AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTTTCTCTACCAGGTGTCTTGCCCGTGGCTTCG
R. calophylla    AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTCCTGCCCGTGGCTTCG
AcalyphaInsulana AAAGACCGAAGCCGTGGCATTTATTTTACGCAAGATTGGGTCTCTCTACCAGGTGTTCTGCCTGTAGCTTCA
BalanopsPancheri AAAGATCGAAGCCGCGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCGGGAGTTCTGCCGGTGGCTTCA
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ByrsonimaCrassif AAAGATAGAAGCCGCGGTATTTATTTCACTCAAGATTGGGTCTCCCTACCTGGTGTTATACCCGTGGCTTCA
MalpighiaGlabra  AAAGATAGAAGCCGCGGGATTTATTTCACTCAAGACTGGGTCTCCCTACCAGGTGTTATACCTGTGGCTTCG
CamptostylusMann AAAGATCGAAGCCGCGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTTATACCCGTGGCTTCA
ClusiaRosea      AAAGATCGAAGCCGCGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCGGGTGTTCTTCCTGTGGCCTCA
CratoxylumCochin AAAGATCGAAGCCGCGGTATTTATTTCACTCAAGATTGGGTCTCTATACCGGGTGTTCTGCCTGTGGCTTCC
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ErythroxylumNovo AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTTCTGCCCGTGGCTTCA
EuonymusHamilton AAAGACCGAAGCCGCGGTATTTATTTCACTCAAGATTGGGTTTCTCTACCGGGTGTTCTGCCTGTGGCTTCT
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FlueggeaVirosa   AAAGATCGAAGCCGCGGTATTTATTTCACTCAAGATTGGGTCTCTATGCCGGGTGTTATACCTGTGGCTTCA
GarciniaSubellip AAAGATCGAAGCCGCGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCGGGTGTTCTTCCTGTAGCTTCA
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IonidiumCommune  AAAGATCGAAGCCGTGGTATTTATTTCACTCAGGATTGGGTCTCTCTACCGGGTGTTCTGCCTGTCGCTTCG
IrvingiaMalayana AAAGATCGAAGCCGTGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCTGGTGTTTTGCCCGTGGCTTCC
IxonanthesReticu AAAGATCGAAGCCGCGGCATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTTATACCCGTGGCTTCC
JatrophaIntegerr AAAGATCGAAGCCGCGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCGGGTGTTTTGCCTGTAGCTTCA
KiggelariaAfrica AAAGATCGAAGCCGCGGTATTTATTTCACTCAAGATTGGGTCTCTTTACCAGGTGTTCTGCCTGTGGCTTCG
LacistemaAggrega AAAGATCGAAGCCGCGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGCGTTCTGCCTGTGGCTTCA
LunaniaParviflor AAAGACCGAAGCCGCGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTTCTGCCCGTAGCTTCA
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OxalisCorniculat AAAGACCGAAGCCGTGGGATTTTTTTCACTCAAGATTGGGTCTCTCTACCAGGGGTTCTGCCCGTGGCTTCA
PassifloraQuadra AAAGATCGAAGCCGCGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCGGGTGTTATTCCCGTGGCTTCA
PhyllanthusFlexu AAAGATCGAAGCCGCGGTATTTATTTCACTCAAGATTGGGTCTCTATGCCGGGTGTTTTACCTGTGGCTTCA
PimelodendronGri AAAGATCGAAGCCGCGGTATTTATTTCACTCAAGATTGGGTTTCTCTACCTGGTGTTATACCTGTAGCTTCA
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SacoglottisSp    AAAGATCGAAGCCGCGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTTATACCCGTGGCTTCA
ScageaOligostemo AAAGATCGAAGTCGCGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCTGGTGTTCTGCCCGTGGCTTCA
TrigoniaBolivian AAAGACCGAAGCCGCGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGGGTTATACCTGTGGCTTCA
AlbiziaTomenosaJ AAAGATCGAAGCCGCGGTATTTATTTCACTCAGGATTGGGTCTCTCTACCGGGTGTTCTGCCCGTTGCTTCG
KerriaJaponica   AAAGATCGAAGCCGCGGTATTTATTTCACTCAAGATTGGGTCTCTCTGCCAGGTGTTTTGCCTGTGGCTTCA
DatiscaCannabina AAAGATCGAAGCCGCGGTATTTATTTCACTCAAGATTGGGTCTCTCTACCAGGTGTTCTGCCTGTGGCTTCA
QuercusRubra     AAAGATCGAAGCCGCGGTATTTATTTCACTCAAGATTGGGTCTCTTTACCAGGTGTTCTGCCCGTGGCTTCA


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                 888888888999999999900000000001111111111222222222233333333334444444444555
Taxon/Node       123456789012345678901234567890123456789012345678901234567890123456789012
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L. lewisii       GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
L. perenne       GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
L. pratense      GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
L. narbonense    GGGGGTATTCACGTTTGGCATATGCCTGCTTTGACAGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
C. selaginoides  GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCTGTATTACAATTTGGC
L. hirsutum      GGGGGTATTCATGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCTGTATTACAATTTGGA
L. hypericifolium------------------------------------------------------------------------
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L. usitatissimum GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
L. nervosum      GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
L. bienne        GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
L. monogynum     GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
L. suffruticosum GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
H. clevelandii   GGCGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCTGTATTACAATTTGGC
H. disjunctum    GGCGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCTGTATTACAATTTGGC
L. berlandieri   GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCTGTATTACAATTCGGC
L. rupestre      GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCTGTATTACAATTTGGC
D. pentagyna     GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
R. indica        GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
H. drymarioides  GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCTGTATTACAATTTGGC
H. micranthum    GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCTGTATTACAATTTGGC
H. castaneifolia GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
S. digynum       GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCTGTATTACAATTTGGC
L. oligophyllum  GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
H. neblinae      GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
H. mystax        ------------------------------------------------------------------------
H. busseana      GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
H. gabunensis    GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
H. obtusifolia   GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
H. neocaledonic  GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
H. penicillanth  GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
H. spicata       GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
H. planchoni     GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
H. orientalis    GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
H. longipes      GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
L. volkensii     GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
L. flavum        GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCCGTATTACAATTTGGT
L. catharticum   GGGGGTATTCACGTTTGGCATATGCCCGCTTTGACAGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
L. arboreum      GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGCGATGATTCCGTATTACAATTTGGC
R. linoides      GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
R. schomburgkii  GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
R. monsalveae    GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
A. pubescens     GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCCGTATTACAATTTGGT
A. khasayama     GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCCGTATTACAATTTGGT
A. saxatilis     GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCCGTATTACAATTTGGT
L. comptonii     GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCTGTATTACAATTTGGC
H. humiriifolia  GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
I. griffithiana  GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
P. magnifolia    GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
T. sinensis      GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
T. ovoidea       GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
R. calophylla    GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTATTACAATTTGGC
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ByrsonimaCrassif GGAGGTATTCACGTTTGGCATATGCCTGCTCTGACTGAGATCTTTGGAGATGATTCCGTACTACAATTCGGT
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CamptostylusMann GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATGCCGTACTACAATTCGGC
ClusiaRosea      GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCTGTACTCCAATTTGGT
CratoxylumCochin GGGGGTATTCATGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTACTACAATTCGGC
CtenolophonEngle GGGGGTATTCATGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTACTACAATTCGGT
DrypetesLittoral GGGGGTATTCACGTTTGGCATATGCCCGCTCTGACCGAGATCTTTGGAGATGATTCTGTACTACAATTCGGT
ElatineTriandra  GGAGGTATTCACGTTTGGCATATGCCTGCTTTGACCGAAATCTTTGGAGATGATTCCGTACTACAATTCGGT
ErythroxylumNovo GGAGGTATTCATGTTTGGCATATGCCTGCTCTAACTGAGATCTTTGGAGATGATTCCGTACTACAATTCGGT
EuonymusHamilton GGGGGTATTCATGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGTGATGATTCCGTACTACAATTCGGT
EuphorbiaHumifus GGGGGTATTCACGTTTGGCATATGCCTGCTTTGACCGAGATCTTTGGAGATGATTCCGTACTACAATTCGGT
EuphroniaGuianen GGGGGTATTCATGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTACTACAATTTGGT
FlacourtiaIndica GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTACTACAATTCGGT
FlueggeaVirosa   GGAGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTACTACAATTCGGT
GarciniaSubellip GGAGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATGCCGTACTCCAATTCGGT
GomphiaSerrata   GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATGCCGTACTACAATTTGGT
HumiriaBalsamife GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTACTACAATTCGGT
IonidiumCommune  GGAGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTGCTACAATTCGGC
IrvingiaMalayana GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACAGAGATCTTTGGAGATGATTCTGTACTACAATTCGGT
IxonanthesReticu GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACTGAGATCTTTGGAGATGATTCCGTACTACAATTCGGC
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JatrophaIntegerr GGAGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTACTACAATTCGGT
KiggelariaAfrica GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTACTACAATTCGGT
LacistemaAggrega GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTACTACAATTCGGT
LunaniaParviflor GGGGGTATTCACGTTTGGCATATGCCCGCTCTGACCGAGATCTTTGGAGATGATTCCGTACTACAATTCGGT
ManihotEsculenta GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTACTACAATTCGGT
OxalisCorniculat GGGGGTATTCACGTTTGGCATATGCCGGCTCTGACCGAGATCTTTGGAGACGATTCCGTACTACAATTCGGT
PassifloraQuadra GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCTGTACTACAATTCGGA
PhyllanthusFlexu GGAGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTACTACAATTCGGT
PimelodendronGri GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATGCCGTACTACAATTCGGT
RicinusCommunis  GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTACTACAATTCGGT
SacoglottisSp    GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATGCCGTACTACAATTCGGT
ScageaOligostemo GGAGGTATTCACGTTTGGCATATGCCTGCCCTGACCGAGATATTTGGAG-----------------------
TrigoniaBolivian GGGGGTATTCATGTGTGGCATATGCCCGCTCTGACCGAGATCTTTGGAGATGATTCCGTACTACAATTCGGT
AlbiziaTomenosaJ GGGGGTATTCACGTTTGGCATATGCCCGCTCTTACCGAGATCTTTGGAGATGATTCCGTACTACAATTCGGG
KerriaJaponica   GGGGGTATTCACGTTTGGCATATGNNTGCTCTGACCGAGATCTTTGGAGATGATTCTGTACTACAATTTGGT
DatiscaCannabina GGGGGTATTCACGTTTGGCATATGCCTGCTCTGACCGAGATCTTTGGAGATGATTCCGTACTACAATTCGGT
QuercusRubra     GGGGGTATTCACGTTTGGCATATGCCTGCTTTGACCGAAATCTTTGGAGATGATTCCGTACTACAATTCGGC


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                 555555566666666667777777777888888888899999999990000000000111111111122222
Taxon/Node       345678901234567890123456789012345678901234567890123456789012345678901234
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L. lewisii       GGTGGAACTTTAGGTCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
L. perenne       GGTGGAACTTTAGGTCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
L. pratense      GGTGGAACTTTAGGTCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
L. narbonense    GGTGGAACTTTAGGCCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
C. selaginoides  GGTGGAACTTTAGGTCACCCTTGGGGAAATGCACCTGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
L. hirsutum      GGTGGAACTTTAGGTCACCCTTGGGGAAATGCACCTGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
L. hypericifolium------------------------------------------------------------------------
L. usitatissimum GGTGGAACTCTAGGCCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTTTAGAAGCATGT
L. nervosum      GGTGGAACTTTAGGTCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
L. bienne        GGTGGAACTCTAGGCCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTTTAGAAGCATGT
L. monogynum     GGTGGAACTTTAGGCCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTTTAGAAGCATGT
L. suffruticosum GGTGGAACGTTAGGTCACCCTTGGGGAAATGCACCTGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
H. clevelandii   GGTGGAACTTTAGGTCACCCTTGGGGAAATGCACCTGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
H. disjunctum    GGTGGAACTTTAGGTCACCCTTGGGGAAATGCACCTGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
L. berlandieri   GGTGGACCTTTAGGTCACCCTTGGGGAAATGCACCTGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
L. rupestre      GGTGGAACTTTAGGTCACCCTTGGGGAAATGCACCTGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
D. pentagyna     GGAGGAACTTTAGGTCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
R. indica        GGTGGAACTTTAGGTCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
H. drymarioides  GGTGGAACTTTAGGTCACCCTTGGGGAAATGCACCTGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
H. micranthum    GGTGGAACTTTAGGTCACCCTTGGGGAAATGCACCTGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
H. castaneifolia GGAGGAACTTTAGGTCACCCTTGGGGAAATGCACCAGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
S. digynum       GGTGGAACTTTAGGTCACCCTTGGGGAAATGCACCAGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
L. oligophyllum  GGTGGAACTTTAGGTCACCCTTGGGGAAATGCACCYGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
H. neblinae      GGAGGAACTTTAGGTCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
H. mystax        ------------------------------------------------------------------------
H. busseana      GGAGGAACTTTAGGTCACCCTTGGGGAAATGCACCAGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
H. gabunensis    GGAGGAACTTTAGGTCACCCTTGGGGAAATGCACCAGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
H. obtusifolia   GGAGGAACTTTAGGTCACCCTTGGGGAAATGCACCAGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
H. neocaledonic  GGAGGAACTATAGGTCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
H. penicillanth  GGAGGAACTATAGGTCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
H. spicata       GGAGGAACTTTAGGTCACCCTTGGGGAAATGCACCAGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
H. planchoni     GGAGGAACTTTAGGTCACCCTTGGGGAAATGCACCAGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
H. orientalis    GGAGGAACTTTAGGTCACCCTTGGGGAAATGCACCAGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
H. longipes      GGAGGAACTTTAGGTCACCCTTGGGGAAATGCACCAGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
L. volkensii     ------------------------------------------------------------------------
L. flavum        GGTGGAACTTTGGGTCACCCTTGGGGAAATGCACCTGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
L. catharticum   GGTGGAACTTTAGGTCACCCTTGGGGAAATGCACCTGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
L. arboreum      GGTGGAACTTTGGGTCACCCTTGGGGAAATGCACCTGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
R. linoides      GGTGGAACTTTAGGTCACCCTTGGGGAAATGCACCTGGTGCCGTAGCTAATCGAGTCGCTCTAGAAGCATGT
R. schomburgkii  GGAGGAACTTTAGGTCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
R. monsalveae    GGAGGAACTTTAGGTCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
A. pubescens     GGTGGAACTTTAGGTCACCCTTGGGGAAATGCGCCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
A. khasayama     GGTGGAACTTTAGGTCACCCTTGGGGAAATGCGCCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
A. saxatilis     GGTGGAACTTTAGGTCACCCTTGGGGAAATGCGCCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
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L. comptonii      GGTGGAACTTTAGGTCACCCTTGGGGAAATGCACCTGGTGCTGTAGCTAATCGAGTAGCTCTAGAAGCATGT
H. humiriifolia   GGAGGAACTTTAGGTCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
I. griffithiana   GGAGGAACTTTAGGTCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
P. magnifolia     GGAGGAACTTTAGGTCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
T. sinensis       GGTGGAACTTTAGGTCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGGGTAGCTCTAGAAGCATGT
T. ovoidea        GGTGGAACTTTAGGTCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGGGTAGCTCTAGAAGCATGT
R. calophylla     GGAGGAACTTTAGGTCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
AcalyphaInsulana GGAGGAACTTTAGGGCATCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
BalanopsPancheri GGAGGAACTTTAGGGCACCCGTGGGGAAATGCACCTGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
BischofiaJavanic GGAGGAACTTTAGGGCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
BruguieraGymnorh GGAGGAACTTTAGGACACCCTTGGGGAAATGCACCAGGTGCTGTAGCTAATCGAGTAGCTCTAGAAGCATGT
ByrsonimaCrassif GGAGGAACTTTGGGGCACCCTTGGGGAAATGCACCTGGTGCCGTAGCTAATCGAGTAGCTCTCGAAGCATGT
MalpighiaGlabra   GGAGGAACTTTGGGGCACCCTTGGGGAAATGCACCAGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
CamptostylusMann GGAGGAACTTTAGGGCACCCTTGGGGAAATGCACCCGGTGCCGTCGCTAATCGAGTAGCTCTAGAAGCATGT
ClusiaRosea       GGAGGAACTTTAGGGCATCCTTGGGGAAATGCACCTGGTGCTGTAGCTAATCGAGTAGCTCTAGAAGCATGT
CratoxylumCochin GGAGGAACTTTAGGGCATCCTTGGGGGAATGCACCTGGTGCTGTAGCTAATCGAGTTGCTCTAGAAGCATGT
CtenolophonEngle GGAGGAACTTTAGGGCACCCTTGGGGAAATGCACCCGGTGCTGTAGCTAATCGAGTAGCTCTAGAAGCATGT
DrypetesLittoral GGAGGAACTTTAGGGCACCCTTGGGGAAATGCGCCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
ElatineTriandra   GGAGGAACTTTAGGGCACCCTTGGGGAAATGCACCTGGTGCTGTAGCTAATCGAGTCGCTCTAGAAGCATGT
ErythroxylumNovo GGAGGAACTTTAGGGCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
EuonymusHamilton GGAGGAACTTTAGGGCATCCTTGGGGAAACGCACCTGGTGCTGTAGCTAATCGAGTAGCTCTAGAAGCATGT
EuphorbiaHumifus GGCGGAACTTTAGGGCACCCTTGGGGAAATGCACCTGGTGCCGTAGCTAATCGAGTAGCTTTAGAAGCATGT
EuphroniaGuianen GGAGGAACTTTAGGACACCCGTGGGGCAATGCACCAGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
FlacourtiaIndica GGAGGAACTTTAGGGCACCCTTGGGGAAATGCACCCGGTGCCGTTGCTAATCGAGTAGCTCTAGAAGCATGT
FlueggeaVirosa    GGTGGAACTTTAGGGCACCCTTGGGGAAATGCACCTGGTGCCGTAGCTAACCGAGTAGCTCTAGAAGCATGT
GarciniaSubellip GGAGGAACTTTAGGCCATCCTTGGGGAAATGCACCTGGTGCTGTAGCTAATCGAGTAGCTCTAGAAGCATGT
GomphiaSerrata    GGAGGAACTTTAGGGCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
HumiriaBalsamife GGAGGAACTTTAGGGCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
IonidiumCommune   GGAGGAACTTTGGGGCACCCTTGGGGAAATGCACCAGGTGCCGTCGCTAATCGAGTAGCTCTAGAAGCATGT
IrvingiaMalayana GGAGGAACTTTGGGGCATCCTTGGGGAAACGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
IxonanthesReticu GGAGGAACTTTAGGGCACCCTTGGGGAAATGCGCCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
JatrophaIntegerr GGAGGAACTTTAGGGCACCCTTGGGGAAATGCGCCTGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
KiggelariaAfrica GGAGGGACTTTAGGTCACCCTTGGGGAAATGCACCCGGTGCCGTCGCTAATCGAGTAGCTCTCGAAGCATGT
LacistemaAggrega GGAGGAACTTTAGGGCACCCTTGGGGAAATGCACCCGGTGCCGTCGCTAATCGAGTAGCTCTAGAAGCATGT
LunaniaParviflor GGAGGAACTTTAGGGCACCCTTGGGGAAATGCACCCGGTGCCGTCGCTAATCGAGTAGCTCTGGAAGCATGT
ManihotEsculenta GGAGGAACTTTAGGGCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
OxalisCorniculat GGAGGAACTTTAGGGCACCCTTGGGGAAATGCACCTGGTGCTGTAGCTAATCGAGTGGCTTTAGAAGCATGT
PassifloraQuadra GGAGGCACTTTAGGGCACCCTTGGGGAAATGCACCTGGTGCCGTCGCTAATCGAGTAGCTCTAGAAGCATGT
PhyllanthusFlexu GGTGGAACTATAGGGCACCCTTGGGGGAATGCACCAGGTGCTGTAGCTAACCGAGTAGCTCTAGAAGCATGT
PimelodendronGri GGAGGAACTTTAGGGCACCCTTGGGGAAATGCACCTGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGC
RicinusCommunis   GGAGGAACTTTAGGGCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
SacoglottisSp     GGAGGAACTTTAGGGCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCATGT
ScageaOligostemo ------------------------------------------------------------------------
TrigoniaBolivian GGAGGAACTTTAGGGCACCCGTGGGGGAATGCACCCGGTGCCGTAGCTAATCGAGTAGCTCTAGAAGCTTGT
AlbiziaTomenosaJ GGGGGAACTTTAGGGCACCCTTGGGGAAATGCACCCGGTGCCGTAGCTAACCGAGTAGCTCTAGAAGCATGT
KerriaJaponica    GGCGGAACTTTAGGACACCCTTGGGNAAATGCACCCGGTGNNGTAGCTAATCGAGTAGCTCTGGAAGCATGT
DatiscaCannabina GGAGGAACTTTAGGGCACCCTTGGGGTAATGCACCCGGTGCCGTAGCTAACCGAGTAGCTCTAGAAGCATG-
QuercusRubra      GGAGGAACTTTAGGGCACCCTTGGGGAAATGCACCCGGTGCTGTAGCTAATCGAGTAGCTCTAGAAGCATGT


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                  222222333333333344444444445555555555666666666677777777778888888888999999
Taxon/Node        567890123456789012345678901234567890123456789012345678901234567890123456
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L. lewisii        GTACAAGCTCGGAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAA---
L. perenne        GTACAAGCTCGGAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
L. pratense       GTACAAGCTCGGAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCCAATAT
L. narbonense     GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAAGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
C. selaginoides   GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
L. hirsutum       GTACAAGCTCGTAATGAGGGACGTG-------------------------------------------TAT
L. hypericifolium---------------------------------------------------------------------TAT
L. usitatissimum GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
L. nervosum       GTACAAGCTCGTAATGAGGGACGTGATCTTNCTCGGGAGGGTAATGAA---------------------TAT
L. bienne         GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCG-------------TAT
L. monogynum      GTACAAGCTCGTAATGAGGGACGTGATCTTGCCCGTGAGGGTAACGAAATTATT---------------TAT
L. suffruticosum GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCACCTAT
H. clevelandii    GTACAAGCGCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
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H. disjunctum     GTACAAGCGCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCG-------------TAT
L. berlandieri    GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
L. rupestre       GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
D. pentagyna      GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
R. indica         GTACAAGCTCGTAATGAGGGACGCGATCTTGCCCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
H. drymarioides   GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
H. micranthum     GTACAAGCGCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
H. castaneifolia  GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
S. digynum        GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
L. oligophyllum   GTACAAGCTCGKAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
H. neblinae       GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
H. mystax         ---------------------------------------------------------------------TAT
H. busseana       GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
H. gabunensis     GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
H. obtusifolia    GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
H. neocaledonic   GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
H. penicillanth   GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
H. spicata        GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
H. planchoni      GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
H. orientalis     GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
H. longipes       GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
L. volkensii      ---------------------------------------------------------------------TAT
L. flavum         GTACAAGCTCGGAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
L. catharticum    GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
L. arboreum       GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAA---
R. linoides       GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
R. schomburgkii   GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGCGGCTAGCAAATAT
R. monsalveae     GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGCGGCTAGCAAA---
A. pubescens      GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
A. khasayama      GTACAAGCTCGTAATGAGGGACGTGATCTTGCCCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
A. saxatilis      GTACAAGCTCGTAATGAGGGACGTGATCTTGCCCGTGAGGGTAATGAAATTATTCG-------------TAT
L. comptonii      GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
H. humiriifolia   GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTC-----------------
I. griffithiana   GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAAT-------------------------TAT
P. magnifolia     GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
T. sinensis       GTACAAGCTCGTAATGAGGGACGTGATCTTGCCCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATAT
T. ovoidea        GTACAAGCTCGTAATGAGGGACGTG--------------------------------------------TAT
R. calophylla     GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGCGGCTAGCAAA---
AcalyphaInsulana  GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATCCGTGAAGCTAGTAAA---
BalanopsPancheri  GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATCCGTGAGGCTAGTAAA---
BischofiaJavanic  GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAAGGTAATGAAATTATCCGTGAGGCTAGCAAA---
BruguieraGymnorh  GTACAAGCTCGGAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATCCGTGGGGCTAGCAAA---
ByrsonimaCrassif  GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATCCGTGAGGCTAGCAAA---
MalpighiaGlabra   GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATCCGTGAGGCTAGCAAA---
CamptostylusMann  GTAAAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGAGTAATGAAATTATCCGTGAGGCTAGCAAA---
ClusiaRosea       GTGCAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGTAAA---
CratoxylumCochin  GTCAAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAA---
CtenolophonEngle  GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAA---
DrypetesLittoral  GTACAAGCTCGGAATGAGGGACGCGACCTTGCTCGTCAAGGTAATGAAATAATCCGTAAGGCTAGCAAA---
ElatineTriandra   GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATCCGTGAGGCTTGTAAA---
ErythroxylumNovo  GTACAAGCTCGTAACGAAGGACGCGATCTTGCTCGTGAGGGTAATGAAATTATCCGTGAGGCTAGCAAA---
EuonymusHamilton  GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAAGGTAATGAAATTATCCGCGAGGCTAGCAAA---
EuphorbiaHumifus  GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATCCGTGAGGCTGGCAAA---
EuphroniaGuianen  GTACAAGCTCGTAATGAGGGACGCGATCTTGCTCGTGAGGGTAATGAAATTATCCGTGCGGCTAGTAAA---
FlacourtiaIndica  GTAAAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATCCGTGAGGCTAGCAAA---
FlueggeaVirosa    GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATCATCCGTGAGGCTAGCAAA---
GarciniaSubellip  GTGCAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAA---
GomphiaSerrata    GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATACGCGAGGCCAGCAAA---
HumiriaBalsamife  GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATCCGTGAGGCTAGCAAA---
IonidiumCommune   GTACAAGCTCGTAATGAAGGGCGCGATCTTGCTCGTGAAGGTAATGAAATTATCCGCGAGGCTTGCAAA---
IrvingiaMalayana  GTACAAGCCCGTAATGAAGGACGCGATCTTGCTCGTGAGGGTAATGAAATTATCCGTGAGGCTAGCAAA---
IxonanthesReticu  GTACAAGCTCGCAATGAGGGACGTGATCTTGCTCGTGAGGGGAATGAAATTATCCGCGAGGCTAGCAAA---
JatrophaIntegerr  GTACAAGCTCGTAATGAAGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAA---
KiggelariaAfrica  GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATCCGTGAGGCTAGCAAA---
LacistemaAggrega  GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAACGAAATTATACGTGAGGCTAGCAAA---
LunaniaParviflor  GTAAAAGCTCGTAATGAGGGACGTGATCTGGCTCGTGAGGGTAATGAAATTATCCGCGAGGCTAGCAA----
ManihotEsculenta  GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGATATTATCCGTGAGGCTAGCAAA---
OxalisCorniculat  GTACAAGCTCGTAATGAAGGGCGTGATCTTGCTCGTGAGGGTAATGAAATTATCCGTGAAGCTAGCAAA---
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PassifloraQuadra  GTACAGGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATCCGTTCAGCTGCCAAA---
PhyllanthusFlexu  GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATCATCCGTGAGGCTAGCAAA---
PimelodendronGri  GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATCCGTGCGGCTAGCAAA---
RicinusCommunis   GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGCGAGGGTAATGAAATTATCCGCGAAGCTGGCAAA---
SacoglottisSp     GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATCCGTGAGGCTAGCAAA---
ScageaOligostemo  ------------------------------------------------------------------------
TrigoniaBolivian  GTACAAGCTCGTAATGAGGGGCGCGATCTTGCTCGTGAGGGTAATGAAATTATCCGTGAGGCTAGCAAA---
AlbiziaTomenosaJ  GTACAGGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGCAAATTT
KerriaJaponica    GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATTCGTGAGGCTAGTAAATTT
DatiscaCannabina  ------------------------------------------------------------------------
QuercusRubra      GTACAAGCTCGTAATGAGGGACGTGATCTTGCTCGTGAGGGTAATGAAATTATCCGTGAGGCTGCTAAATTT


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Taxon/Node        789012345678901234567890123456789012345678901234567890123456789012345678
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L. lewisii        -------------------------------------------------------------------ATATT
L. perenne        AAAAAATATTTTGAAATAGATGGATCATTTAAAAAAAGCTTCTTATACCCACTTATCTTTCGGGAGTATATT
L. pratense       AAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTTTCGGGAGTATATT
L. narbonense     AAAAAATATATA---------GGATCCCTTAAAAAAAGCTTCTTATACCCACTTATTTTTCGGGAGTATATT
C. selaginoides   AAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTTTCGGGAGTATATT
L. hirsutum       AAAAAATATTTAGAACTAGATAGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTTTCGGGAGTATATT
L. hypericifoliumAAAAAATATTTAGAACTAGATAGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTTTCGGGAGTATATT
L. usitatissimum  AAAAAATATTTACAACTGGATAGATCCCTTAAAAAAAGCTTCTTATACCCACTTATCTTTCGGGAGTATATT
L. nervosum       AAAAAATATTTAGAACTAGATAGATCGCTTAAAAAAAGCTTTCTATACCCACTTATCTTTCGGGAGTATATT
L. bienne         AAAAAATATTTACAACTGGATAGATCCCTTAAAAAAAGCTTCTTATACCCACTTATCTTTCGGGAGTATATT
L. monogynum      AAAAAATATTTACAACTGGATAGATCCCTTAAAAAAAGCTTCTTATACCCACTTATTTTTCGGGAGTATATT
L. suffruticosum  AAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTTTCGGGAGTATATT
H. clevelandii    AAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGTTTCCTATACCCACTTATCTTTCGGGAGTATATT
H. disjunctum     AAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGTTTCCTATACCCACTTATCTTTCGGGAGTATATT
L. berlandieri    AAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTTTCGGGAGTATATT
L. rupestre       AAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTTTCGGGAGTATATT
D. pentagyna      AAAAAATATTTAGAACTAGATAGATCTCTTAAAAAAAACTTCCTATACCCCCTTATCTTTCGGGAGTATATT
R. indica         AAAAAATATTTAGAACTAGATAGGTCTCTTAAAAAAAGCTTCCTATACCCACTTATCTTTCGGGAGTATATT
H. drymarioides   AAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTTTCGGGAGTATATT
H. micranthum     AAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGTTTCCTATACCCACTTATCTTTCGGGAGTATATT
H. castaneifolia  AAAAAATATTTAGAACTAGATAGATCTCTTAAAAAAAACTTCCTATACCCACTTATCTTTCGGGAGTATATT
S. digynum        AAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTTTCGGGAGTATATT
L. oligophyllum   AAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTTTCGGGAGTATATT
H. neblinae       AAAAAATATTTAGAACTAGATAGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTTTCGGGAGTATATT
H. mystax         AAAAAATATTTAGAACTAGATAGATCTCTTAAAAAAAACTTCCTATACCCACTTATCTTTCGGGAGTATATT
H. busseana       AAAAAATATTTAGAACTAGATAGATCTCTTAAAAAAAACTTCCTATACCCACTTATCTTTCGGGAGTATATT
H. gabunensis     AAAAAATATTTAGAACTAGATAGATCTCTTAAAAAAAACTTCCTATACCCACTTATCTTTCGGGAGTATATT
H. obtusifolia    AAAAAATATTTAGAACTAGATAGATCTCTTAAAAAAAACTTCCTATACCCACTTATCTTTCGGGAGTATATT
H. neocaledonic   AAAAAATATTTAGAACTAGATAGATCTCTTAAAAAAAACTTCCTATACCCCCTTATCTTTCGGGAGTATATT
H. penicillanth   AAAAAATATTTAGAACTAGATAGATCTCTTAAAAAAAACTTCCTATACCCCCTTATCTTTCGGGAGTATATT
H. spicata        AAAAAATATTTAGAACTAGATAGATCTCTTAAAAAAAACTTCCTATACCCACTTATCTTTCGGGAGTATATT
H. planchoni      AAAAAATATTTAGAACTAGATAGATCTCTTAAAAAAAACTTCCTATACCCACTTATCTTTCGGGAGTATATT
H. orientalis     AAAAAATATTTAGAACTAGATAGATCTCTTAAAAAAAACTTCCTATACCCACTTATCTTTCGGGAGTATATT
H. longipes       AAAAAATATTTAGAACTAGATAGATCTCTTAAAAAAAACTTCCTATACCCACTTATCTTTCGGGAGTATATT
L. volkensii      AAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCGCTTATCTTTCGGGAGTATATT
L. flavum         AAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTTTCGGGAGTATATT
L. catharticum    AAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTTTCGGGAGTATATT
L. arboreum       ------------------------------------------------------------------------
R. linoides       AAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTTTCGGGAGTATATT
R. schomburgkii   AAAAAATATTTAGAACTAGATAGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTTTCGGGAGTATATT
R. monsalveae     ------------------------------------------------------------------------
A. pubescens      AAAAAATATTTAGAACTAGATAGATCTCTTAAAAAAAACTTCCTATACCCACTTATCTTTCGGGAGTATATT
A. khasayama      AAAAAATATTTAGAACTAGATAGATCTCTTAAAAAAAACTTCCTATACCCACTTATCTTTCGGGAGTATATT
A. saxatilis      AAAAAATATTTAGAACTAGATAGATCTCTTAAAAAAAACTTCCTATACCCACTTATCTTTCGGGAGTATATT
L. comptonii      AAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTTTCGGGAGTATATT
H. humiriifolia   ---------------CTAGATAGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTTTCGGGAGTATATT
I. griffithiana   AAAAAATATTTCGAACTAGATAGATCTCTTAAAAAAAACTTCCTATACCCACTTATCTTTCGGGAGTATATT
P. magnifolia     AAAAAATATTTCGAACTAGATAGATCTCTTAAAAAAAACTTCCTATACCCACTTATCTTTCGGGAGTATATT
T. sinensis       AAAAAATATTTAGAACTAGATAGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTTTCGGGAGTATATT
T. ovoidea        AAAAAATATTTAGAACTAGATAGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTTTCGGGAGTATATT
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R. calophylla    ------------------------------------------------------------------------
AcalyphaInsulana -------------------------------------------------------------------ATATT
BalanopsPancheri -------------------------------------------------------------------ATATT
BischofiaJavanic -------------------------------------------------------------------ATATT
BruguieraGymnorh -------------------------------------------------------------------ATATT
ByrsonimaCrassif -------------------------------------------------------------------ATATT
MalpighiaGlabra  -------------------------------------------------------------------ATATT
CamptostylusMann -------------------------------------------------------------------ATATT
ClusiaRosea      ------------------------------------------------------------------------
CratoxylumCochin -------------------------------------------------------------------ATCTT
CtenolophonEngle ------------------------------------------------------------------------
DrypetesLittoral -------------------------------------------------------------------ATATT
ElatineTriandra  -------------------------------------------------------------------ATATT
ErythroxylumNovo -------------------------------------------------------------------ATATT
EuonymusHamilton ------------------------------------------------------------------------
EuphorbiaHumifus -------------------------------------------------------------------ATATT
EuphroniaGuianen -------------------------------------------------------------------ATATT
FlacourtiaIndica --------------------------------------------------------------------TATT
FlueggeaVirosa   -------------------------------------------------------------------ATATT
GarciniaSubellip -------------------------------------------------------------------ATATT
GomphiaSerrata   -------------------------------------------------------------------ATATT
HumiriaBalsamife -------------------------------------------------------------------ATATT
IonidiumCommune  -------------------------------------------------------------------ATATT
IrvingiaMalayana ---------------------------------------------------------------------ATT
IxonanthesReticu -------------------------------------------------------------------ATATT
JatrophaIntegerr -------------------------------------------------------------------ATATT
KiggelariaAfrica -------------------------------------------------------------------ATATT
LacistemaAggrega -------------------------------------------------------------------ATATT
LunaniaParviflor --------------------------------------------------------------------TATT
ManihotEsculenta -------------------------------------------------------------------ATATT
OxalisCorniculat ------------------------------------------------------------------------
PassifloraQuadra -------------------------------------------------------------------ATATT
PhyllanthusFlexu -------------------------------------------------------------------ATATT
PimelodendronGri ------------------------------------------------------------------------
RicinusCommunis  -------------------------------------------------------------------ATATT
SacoglottisSp    -------------------------------------------------------------------ATATT
ScageaOligostemo -------------------------------------------------------------------ATACT
TrigoniaBolivian -------------------------------------------------------------------ATATT
AlbiziaTomenosaJ CAAGTATATTTAGAACTAGATAGATCTCGTCAACATGACTTCCTATACCCACTTATTTTTCGGGAGTATATT
KerriaJaponica   CAAGGATATTTAGAACTAGATAGATATCAGCAACATGACTTTCTATACCCACTTATCTTTCGGGAGTATATT
DatiscaCannabina ------------------------------------------------------------------------
QuercusRubra     CAAGGATATTTAGAACTCGATAGATTTCAGCAACACGACTTCCTATACCCACTTATCTTTCGGGAATATAGT


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Taxon/Node       901234567890123456789012345678901234567890123456789012345678901234567890
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L. lewisii       TATATAGTTACTTATGCTCGTGGTTTAAATGAATATGGATCCATTTTT------TCGGAAAATTTAGGTTAT
L. perenne       TATATAGTTACTTATGCTCGTGGTTTAAATGAATATGGATCCATTTTT------TCGGAAAATTTAGGTTAT
L. pratense      TATGTAGTTACTTATGCTCGTGGTTTAAATAGATATGGTTCCATTTTT------TCAGAAAATGTAGGTTGT
L. narbonense    TATATAGTTACTTCTGCTCATGGTTTAAATGAATATGGATCCATTTTT------TCGGAAAATTTAGGTTAT
C. selaginoides  TATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCCATTTTT------TCAGAAAATGTAGGTTGT
L. hirsutum      TATATAGTTACTTATGCTCATGGTTTAAGTGGATATGGATCCATTTTT------TCGGAAAATGTAGGTTAT
L. hypericifoliumTATATAGTTACTTATGCTCATGGTTTAAGTGGATATGGATCCATTTTT------TCGGAAAATGTAGGTTAT
L. usitatissimum TATATAGTTACTTCTGCTCACGGTTTAACTGAACATGGATCCATTTTT------TCGGAAAATTCATCTTAT
L. nervosum      TATATAGTTACTTATGCTCGTGGTTTAAATGAATATGGATCCATTTTT------TCGAAAAATTTAGGTTAT
L. bienne        TATATAGTTACTTCTGCTCACGGTTTAACTGAACATGGATCCATTTTT------TCGGAAAATTCATCTTAT
L. monogynum     TATATAGTTACTTCGGCTCCTGGTTTAAATGAACATGGATCCAGTTTT------TCGGAAAATTCCTCTTAT
L. suffruticosum TATATAGTTACTTACGTTCGTGGTTTAAATGGATATGGATCCATTTTT------TCAGAAAATGTAGGTTGT
H. clevelandii   TATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCCATTTTT------TCAGAAAATGTAGGTTGT
H. disjunctum    TATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCCATTTTT------TCAGAAAATGTAGGTTGT
L. berlandieri   TATGTAGTTACTTATGCTCGTGGTTTAAATAGATATGGTTCCATTTTT------TCAGAAAATGTAGGTTGT
L. rupestre      TATATAGTTACTTATGCTCGTGGTTTAAATAGATATGGCTCCATTTTT------TCAGAAAATGTAGGTTGT
D. pentagyna     TATACAGTTACTTATGATCGTGGTTTAAATGGATATGGATCCATTTTG------TTGGAAAATGTAGGTTAT
R. indica        TATATAGTTACTTATGCTCGTGGTTTAAATGGATATGCATCCATTTTT------TCGGAAAAGGTAGGTTAT
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H. drymarioides  TATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCCATTTTT------TCAGAAAATTTAGGTTGT
H. micranthum    TATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCCATTTTT------TCAGAAAATGTAGGTTGT
H. castaneifolia TATACAGTTACTTATGATCGTGGTTTAAATGGATATGGATCAATTTTG------TTGGAAAATGTAGGTTAT
S. digynum       TATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCCATTTTT------TCAGAAAATTTAGGTTGT
L. oligophyllum  TATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCCATTTTT------TCAGAAAATGTAGGTTGT
H. neblinae      TATACAGTTACTTATGATCGTGGTTTAAATGGATATGGATCCATTTTG------TTGGAAAATGTAGGTTAT
H. mystax        TATACAGTTACTTATGATCGTGGTTTAAATGGATATGGATCAATTTTG------TTGGAAAATGTAGGTTAT
H. busseana      TATACAGTTACTTATGATCGTGGTTTAAATGGATATGGATCAATTTTG------TTGGAAAATGTAGGTTAT
H. gabunensis    TATACAGTTACTTATGATCGTGGTTTAAATGGATATGGATCAATTTTG------TTGGAAAATGTAGGTTAT
H. obtusifolia   TATACAGTTACTTATGATCGTGGTTTAAATGGATATGGATCAATTTTG------TTGGAAAATCTAGGTTAT
H. neocaledonic  TATACAGTTACTTATGATCGTGGTTTAAATGGATATGGATCAATTTTG------TTGGAAAATGTAGGTTAT
H. penicillanth  TATACAGTTACTTATGATCGTGGTTTAAATGGATATGGATCCATTTTG------TTGGAAAATGTAGGTTAT
H. spicata       TATACAGTTACTTATGATCGTGGTTTAAATGGATATGGATCAATTTTG------TTGGAAAATCTAGGTTAT
H. planchoni     TATACAGTTACTTATGATCGTGGTTTAAATGGATATGGATCAATTTTG------TTGGAAAATCTAGGTTAT
H. orientalis    TATACAGTTACTTATGATCGTGGTTTAAATGGATATGGATCAATTTTG------TTGGAAAATGTAGGTTAT
H. longipes      TATACAGTTACTTATAATCGTGGTTTAAATGGATATGGATCAATTTTG------TTGGAAAATGTAGGTTAT
L. volkensii     TATATAGTTACTTACGCTCGTGGTTTAAACGGATATGGATCCATTTTT------TCAGAAAATGTAGGTTGT
L. flavum        TATATAGTTACTTATGCTCGTGGTTTAAATCGATATGGATCCATTTTT------TCGGAACATGTGGGTTGT
L. catharticum   TATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGATCCCTTTTT------TCGGAAAATCTAGGTTGT
L. arboreum      ------------------------------------------------------------------------
R. linoides      TATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGATCCATT---------------AAGGTAGGTTAT
R. schomburgkii  TATACAGTTACTTATGATCGTGGTTTAAATGGATATGGATCCATTTTG------TTGGAAAATGTAGGTTAT
R. monsalveae    ------------------------------------------------------------------------
A. pubescens     TATATAGTTACTTATGCTCGTGGTTTAAATGGCTATGGATCCATTTTT------TCGGAAAATGTAGGTTAT
A. khasayama     TATATAGTTACTTATGCTCGTGGTTTAAATGGCTATGGATCCATTTTT------TCGGAAAATGTAGGTTAT
A. saxatilis     TATATAGTTACTTATGCTCGTGGTTTAAATGGCTATGGATCCATTTTT------TCGGAAAATGTAGGTTAT
L. comptonii     TATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCCATTTTT------TCAGAAAATGTAGGTTGT
H. humiriifolia  TATACAGTTACTTATGATCGTGGTTTAAATGGATATGGATCCATTTTG------TTGGAAAATGTAGGTTAT
I. griffithiana  TATACAGTTACTTATGATCGTGGTTTAAATGGATATGGATCAATTTTG------TTGGAAAATGTAGGTTAT
P. magnifolia    TATACAGTTACTTATGATCGTGGTTTAAATGGATATGGATCCATTTTG------TTGGAAAATGTAGGTTAT
T. sinensis      TATATACTTACTTATGCTCGTGGTTTAAATGGATATGTATCCATTTTT------TCGGAAAATGTGGGTTAT
T. ovoidea       TATATACTTACTTATGCTCGTGGTTTAAATGCATATGGATCCATTTTT------TCGGAAAATGTGGGTTAT
R. calophylla    ------------------------------------------------------------------------
AcalyphaInsulana TATACATTTGCTCATGATCATAGTTTAAAT------AGATCTAGTTTG------TTGGAAAATGTAGGTTAT
BalanopsPancheri TATACATTTGCTTATGATCATGGTTTAAAT------AGATCTATTTTG------TTGGAAAAGGTAGGTTAT
BischofiaJavanic TATAGACTTGTTCATGATCATGGTTTAAAT------AGATCTATTTTG------TTGGAAAATGTGGGTTAT
BruguieraGymnorh TATACACTTTCTCATGATCATGGTTTAAAT------AAATCTATTTTG------TTGGAAAATGAAGGTCAT
ByrsonimaCrassif TATACACTTGCTCATGATCATGGTTTAAAT------AGATCGATTTTG------TTGGAAAATGTGGGTTAT
MalpighiaGlabra  TATATACTTGCTCAT---------GTAAAT------AGATCTATTTTA------TTGGAAAATGTAGGTTAT
CamptostylusMann TATACACTTGCTCATGATCATGGTTTAAAT------AGATCTATTTTG------TTGGAAAATGTGGGTTAT
ClusiaRosea      -------TTGCTCATGGTCATGGTTTAATA---AATAGATCCATTTTA------TTGGAAAATGTAGGTTAT
CratoxylumCochin TATATACTTGCTCATGATCATAGTTTACAT------AGATCTGCTTTG------TTGGAAAATTTAAGTTAT
CtenolophonEngle ------------------------------------------------------------------------
DrypetesLittoral TATACACTTGCTCATGATCATAGTTTAAAT------AGATCTCTTTTG------TTGGAAAATGTAGGTTAT
ElatineTriandra  TATACACTTGCTCATGATCATGGTTTAAAT------AGATCGATTTTG------TTGGAAAATGCGGGTTAT
ErythroxylumNovo TATATACTTGTTCATGATCACGGTTTAAAT------AGATCCATTTTG------TTGGAAAATGGAGATTAT
EuonymusHamilton --------TTCCCATGATTATGGTTTAAAT------AGATCTATTTTG------TTGCAAAATGTCAGTTAT
EuphorbiaHumifus TATACATTTTCTCATGATCATAGTTTAAAT------AGATCTATTTTG------TTGCAAAATGAAGGTTAT
EuphroniaGuianen TATACGCTTGCTCATGATCATCGTTTAAGTTTAAACCGATCTATTTTGTTTAAATTTAAAAATGCAGGTTAT
FlacourtiaIndica TATACATTTGCTCATGATCGTGACTTAAAT------AGATCTATTTTG------TTAGAAAATGTAGGTTAT
FlueggeaVirosa   TATAGGCTTGCTCATGAGCATGGTTTAAAT------AAATCTATTTTG------TTGGAAAATGTGGGTTAT
GarciniaSubellip TATACACTTGCTCATGATCATGGTTTAAATAGAGATAGATATATTTTA------TTGGAAACTGTAGGTTAT
GomphiaSerrata   TATACACTTGCTTATGATCATGGTTTAAAT------AGATCTATTTTG------TTGGAAAATGTAGGTTAT
HumiriaBalsamife TATACACTTGCTCATGATCATGGTTTAAAT------GGATCTATTCTG------TTGGAAAATGTGGGTTAT
IonidiumCommune  TATACATTTGCTCATGATCATGGTTTAAAT------AAATCTCTTTTG------TTGGAAAATGTGGGTTAT
IrvingiaMalayana TATACATTTGCTCATGATCATGGTTTAAAT------AGATCCATTTTG------TTGGAAGATGTAGGTTAT
IxonanthesReticu TATACACTTGCTCATGATCATGGTTTAAGC------GGATCCATTTTC------TTAGAAAATGTAGGTTAT
JatrophaIntegerr TATATATTTGCTCATGATCATAGTTTAAAT------AGATCGATTTTG------TTGGAAAATGTAGGTTAT
KiggelariaAfrica TATATATTTGCTCATGATCATGGTTTAAAC------GGATCTATTTTG------TTGGAAAATTTAGATTAT
LacistemaAggrega TATACACTTGCTCATTATCATGGTTTAAAT------AGATCTATTTTG------TTGGAAAATGTAGGGTAT
LunaniaParviflor TATACGTTTGCTCATGATCGTGATTTAAAT------AGATCGATTTTG------TTGGAAAATGTAGGTTAT
ManihotEsculenta TATACATTCGCTCATGATCATAGTTTAAAT------AGATCTATTTTG------TTGGAAAATGTAGGTTAT
OxalisCorniculat --TGCCCTTGCTCACGATCATTTTTTAAATAAAAATCGATCCATTTTG------TTGGAAAATGCAGATTAT
PassifloraQuadra TATACTCTTGTTCATGATCGTGGTTTCAAT------AGATCGATTGTA------TTCGAAAATATGGCTTAT
PhyllanthusFlexu TATAGACTTGCTCATGAGCATGGTTTAAAT------AAATCTATTTTG------TTGGAAAATGTAGGTTAT
PimelodendronGri -----------TCATGATCATAGTTTAAAT------AGATCGATTTTG------TTGGAAAATGTAGGTTAT
RicinusCommunis  TATACATTTGCTCATGATCACAGTTTAAAT------AGATCTACTTTG------TTGGAAAATTTAGGTTAT
SacoglottisSp    TATACACTTGCTCATGATCATTGTTTAAAT------GGATCTATTCTG------TTGGAAAATGTAGGTTAT
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ScageaOligostemo TATAGGCTTGCTTATGATCATGACCTAAAT------------AGTTTG------TTGGAAAATGTAGGTTAT
TrigoniaBolivian TATATATTTGCTCATGATCATGGTTTAAAC------GGATCTATTTTG------TTGGAAAATTTAGATTAT
AlbiziaTomenosaJ TTTGCACTTGCTTACGATCATGGTTTAAAT------AGTTCCATTTTG------GTGCAAAATCTAGGTTAT
KerriaJaponica   TATGCACTTGCTCATGATCATGGTTTAAAT------AGATCTATTTTG------TTGGATAATGTAGGTTAT
DatiscaCannabina ------TTTGCTCATGATCATTTTTTAAAT------AGATCTATTTTG------TTGGAAAATGTAGGTTAT
QuercusRubra     TATGCACTTGCTCATGGTCATGGTTTAAAT------AGATACATGTTG------TTGGAAAATATAGGTTAT



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                 444444444555555555566666666667777777777888888888899999999990000000000111
Taxon/Node       123456789012345678901234567890123456789012345678901234567890123456789012
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L. lewisii       GACAATAAATTGAGT---------TTACTAATTATAAAACGTTTAATTACTCGAATGAATCAACCGGATCAT
L. perenne       GACAATAAATTGAGT---------TTACTAATTATAAAACGTTTAATTACTCGAATGAATCAACCGGATCAT
L. pratense      GACAATAAATCTAGT---------TTATTAATTGTAAAACGTTTAATTACTCGAATGAATCAACCGAATCAT
L. narbonense    CACAATAAATCGAGT---------TTACTAATTATAAAACGCTTAATTACCCGAATAAATCAGCCGAATCAT
C. selaginoides  GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGAATCAACCGAATCAT
L. hirsutum      GACAATAAATCGAGT---------TTACTAATTATAAAACGTTTAATTACTCGAATGAATCAACCGAATCAT
L. hypericifoliumGACAATAAATCGAGT---------TTACTAATTATAAAACGTTTAATTACTCGAATGAATCAACCGAATCAT
L. usitatissimum CACAATAAATCGAGT---------TTACTAATTATAAAACGCTTAATTACTCGAATGAATCAGCCGAATCAG
L. nervosum      GACAATAAATTGAGT---------TTACTAATTATAAAACGTTTAATTACTCGAATGAATCAACCGAATCAT
L. bienne        CACAATAAATCGAGT---------TTACTAATTATAAAACGCTTAATTACTCGAATGAATCAGCCGAATCAG
L. monogynum     CACGATAAATCGAGT---------TTACTAATTATAAAACGCTTAATTACTCGAATGAATCAGCCGAATCAG
L. suffruticosum GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGAATCAACCGAATCGT
H. clevelandii   GACAAGAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGAATCAACCGAATCAT
H. disjunctum    GACAAGAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGAATCAACCGAATCAT
L. berlandieri   GACAATAAATCTAGT---------TTATTAATTGTAAAACGTTTAATTACTCGAATGAATCAACCGAATCAT
L. rupestre      GACAATAAATCTAGT---------TTATTAATTGTAAAACGTTTAATTACTCGAATGAATCAACCGAATCAT
D. pentagyna     GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
R. indica        GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGAATCAACCGAATCAT
H. drymarioides  GACAAGAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGAATCAACCGAATCAT
H. micranthum    GACAAGAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGAATCAACCGAATCAT
H. castaneifolia GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
S. digynum       GACACGAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGAATCAACCGAATCAT
L. oligophyllum  GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGAATCAACCGAATCAT
H. neblinae      GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
H. mystax        GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
H. busseana      GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
H. gabunensis    GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
H. obtusifolia   GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
H. neocaledonic  GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
H. penicillanth  GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGTATCAAGAGAATCAT
H. spicata       GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
H. planchoni     GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
H. orientalis    GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
H. longipes      GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
L. volkensii     GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGAATCAACCGAATCGT
L. flavum        GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGAATCAACCGAATCAT
L. catharticum   GATAGTAAATCTAGT---------TTACTAATTGTAAAGCGTTTAATTACTCGAATGAATCAACCGAATCAT
L. arboreum      ------------------------------------------------------------------------
R. linoides      GATAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGAATCAACCGAATCAT
R. schomburgkii  GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
R. monsalveae    ------------------------------------------------------------------------
A. pubescens     GACAATAAATCTAGT---------TTACTGATTGTAAAACGTTTAATTACTCGAATGAATCAACCGAATCAT
A. khasayama     GACAATAAATCTAGT---------TTACTGATTGTAAAACGTTTAATTACTCGAATGAATCAACCGAATCAT
A. saxatilis     GACAATAAATCTAGT---------TTACTGATTGTAAAACGTTTAATTACTCGAATGAATCAACCGAATCAT
L. comptonii     GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGAATCAACCGAATCAT
H. humiriifolia  GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
I. griffithiana  GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
P. magnifolia    GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
T. sinensis      GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTGGAATGAATCAACCGAATCAT
T. ovoidea       GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTGGAATGAATCAACCGAATCAT
R. calophylla    ------------------------------------------------------------------------
AcalyphaInsulana GACAACAAATCTAGT---------TTATTAATTATAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
BalanopsPancheri TATAAGAAATTGAAT---------TTACTAATTGTAAAACGTGTAATTACTCGAATGTATCAACAGAGTCAT
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BischofiaJavanic GACAATAAATCTAGT---------TTACTGATTGTAAAACGTTTAATTACTCGAATTTATCACCAGAATCAT
BruguieraGymnorh AACAATAAATCTAGT---------TTAGTAATTATAAAACGTTTAATTACTCGAATATATCAACAGAATCAT
ByrsonimaCrassif GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTATTCGAATGTATCAACAGAATCAT
MalpighiaGlabra  GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATCATTCGAATGTATCAACAGATAGAT
CamptostylusMann GACAATAAATCCAAT---------TTACTAATTGTAAAACGTTTAATCATTCGAATGTATCAACAGATAGAT
ClusiaRosea      GACAATAAATTTAGT---------TTTATAATTGTAAAACGATTAATTATTCGAATGTATCAACAGAAACAT
CratoxylumCochin GACACTAAATTGAGT---------TTCCTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
CtenolophonEngle ------------------------------------------------------------------------
DrypetesLittoral GACAATAAATCCAGT---------TTACTAATTGTAAAACGTTTAATTACTCCAATGTATCAACAGAATCAT
ElatineTriandra  GACAAAAAATCGAGT---------TTACTAATTGTAAAACGTTTAATCATTCGAATGTATCAACAGAATCAT
ErythroxylumNovo AACAAACAATCTAGT---------TTACTAATTGTAAAACGTTTAATCGCTCGACTATATCAACAGAATCAT
EuonymusHamilton GAAAAAAAATCTAGT---------TTATTAATTGTAAAACGTTTAATTATTCGAATGGATCAGCAAAATCAT
EuphorbiaHumifus GACAAAAAATTGAGT---------TTCTTAATTGTAAAACGTTTAATTATGCGAATCTATCAACAGAATCAT
EuphroniaGuianen GTCAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTATTCGAATGTACCAACAGAATTTT
FlacourtiaIndica GGCAATAAATATAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
FlueggeaVirosa   GACAAAAAATCTAGT---------TTACTTATTGTAAAACGTTTAATTACTCGAATTTATCAACAGAATCTT
GarciniaSubellip GACAATCAATTTAGT---------TTCCTAATTGTAAAACGGTTAATTATTCGAATGTATCAACAGAATCAT
GomphiaSerrata   TACAATAAATTTAAT---------TTACTAATTGTAAAACGTGTAATTACTCGAATGTATCAACAGAATCAT
HumiriaBalsamife GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
IonidiumCommune  GGTAAAAAATCTAGTAAATCTAGTTTACTAATTGTAAAACATTTAATTACTCGAATGTATCAACAGAATCAT
IrvingiaMalayana GATAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTATTCGAATGTATCAACAAAATCAT
IxonanthesReticu GAGAGTAAATCGAGT---------TTATTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
JatrophaIntegerr GACAATAAATTTAGT---------TTCTTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
KiggelariaAfrica GAAACTAAATCTAGT---------TTATTAATTGTAAAACGTTTAATTATTCGAATATATCAACAAAAATTT
LacistemaAggrega GACAATAAATCTAGT---------TTATTAATTGTAAAACGTTTAATTACTCGAATGTATGAAAAGAATCAT
LunaniaParviflor GACAATAAATATAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
ManihotEsculenta GACAATAAATCTAGT---------TTATTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
OxalisCorniculat GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTCCTCGAATGTATCAACAGAATCAT
PassifloraQuadra GATAGTAAATTTAGT---------TTACTAATTGTAAAACGTTTAATTGCAGGAATATATCAAAAGAATCTC
PhyllanthusFlexu GACAAAAAATCTAGT---------TTACTTATTGTAAAACGTTTAATTACTCGAATTTATCAACAGAATTTT
PimelodendronGri GACAATAAATCTAGT---------TTATTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
RicinusCommunis  GACAATAAATCTAGT---------CTATTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAACCAT
SacoglottisSp    GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATATATCAACAGAATCAT
ScageaOligostemo GATAATAAATCTAGT---------TTACTGATTGTAAAACGTTTAATTACTCGAATTTATCGACAGAATCAT
TrigoniaBolivian GAAACTAAATCTAGT---------TTATTAATTGTAAAACGTTTAATTATTCGAATATATCAACAAAAATTT
AlbiziaTomenosaJ GACAATAAATCTAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
KerriaJaponica   GACAATAAATCTAGT---------TTACTAATTATAAAACGTTTAATTAGTCGAATGTATCAACAGAATCAT
DatiscaCannabina GACAATAAATCCAGT---------TTACTAATTGTAAAACGTTTAATTACTCGAATGTATCAACAGAATCAT
QuercusRubra     GATAATAAATCTAGT---------TTACTGATTGTAAAACGCTTAATTACTACAATGTATCAACAGAATTAT
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Taxon/Node       345678901234567890123456789012345678901234567890123456789012345678901234
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L. lewisii       TTC------------AAAATTTTGTCTACA------------------GATTCTGAACAACCTACCCTTTTT
L. perenne       TTC------------AAAATTTTGTCTACA------------------GATTCTGAACAACCTACCCTTTTT
L. pratense      TTC------------ATTATTTCGGCTACT------------------GATTCTGAACAACATATACTTTTT
L. narbonense    TTC------------CCAAATTTGGCTACA------------------GATTCGGAACAACATATACTTTTT
C. selaginoides  TTC------------ATTATTTCGGCTACT------------------GATTCTGAACAACATATACTTTTT
L. hirsutum      TTC------------AAAATTTCAGCTACT------------------GATTCTGAACAACATACACTTTTT
L. hypericifoliumTTC------------AAAATTTCAGCTACT------------------GATTCTGAACAACATACACTTTTT
L. usitatissimum TTC------------CAAATTTTGGCTTCA------------------GATTCTGAACAACATATATTTTTT
L. nervosum      TTC------------CAAATTTTGTCTACA------------------GATTCTGAACAACCTATACTTTTT
L. bienne        TTC------------CAAATTTTGGCTTCA------------------GATTCTGAACAACATATATTTTTT
L. monogynum     TTC------------CCAATTTTGGCTTCT------------------GATTCTGAACAACATATATTTTTT
L. suffruticosum TTC------------ATTATTTCGGCTACT------------------GATTCTGAACAACATATACTTTTT
H. clevelandii   TTC------------ATTATTTCGGCTACT------------------GATTCTGAACAGCATATACTTTTT
H. disjunctum    TTC------------ATTATTTCGGCTACT------------------GATTCTGAACAGCATATACTTTTT
L. berlandieri   TTC------------ATTATTTCGGCTACT------------------GATTCTGAACAACATATACTTTTT
L. rupestre      TTC------------ATTATTTCGGCTACT------------------GATTCTGAACAACATATACTTTTT
D. pentagyna     TTC------------ATTATTTCTGCTACT------------------GATTCTGAAAAAAATACACTTTTT
R. indica        TTC------------ATTATTTCGGCTACT------------------GATTCTGAACACCATCCACTTTTT
H. drymarioides  TTC------------ATTATTTCAGCTACT------------------GATTCTGAACAACATATACTTTTT
H. micranthum    TTC------------ATTATTTCGGCTACT------------------GATTCTGAACAACATATACTTTTT
H. castaneifolia TTC------------ATTATTTCTGCTACT------------------GATTCTGAAAAAAATACACTTTTT
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S. digynum        TTC------------ATTATTTCGGCTACT------------------GATTCTGAACAACATATACTTTTT
L. oligophyllum   TTC------------ATTATTTCGGCTACT------------------GATTCTGAACAACATATACTTTTT
H. neblinae       TTC------------ATTATTTCTGCTACT------------------GATTCTGAAAAAAATACACTTTTT
H. mystax         TTC------------ATTATTTCTGCTACT------------------GATTCTGAAAAAAATACACTTTTT
H. busseana       TTC------------ATTATTTCTGCTACT------------------GATTCTGAAAAAAATACACTTTTT
H. gabunensis     TTC------------ATTATTTCTGCTACT------------------GATTCTGAAAAAAATACACTTTTT
H. obtusifolia    TTC------------ATTATTTCTGCTACT------------------GATTCTGAAAAAAATACACTTTTT
H. neocaledonic   TTC------------ATTATTTCTGCTACT------------------GATTCTGAAAAAAATACACTTTTT
H. penicillanth   TTC------------ATTATTTCTGCTACT------------------GATTCTGAAAAAAATACACTTTTT
H. spicata        TTC------------ATTATTTCTGCTACT------------------GATTCTGAAAAAAATACACTTTTT
H. planchoni      TTC------------ATTATTTCTGCTACT------------------GATTCTGAAAAAAATACACTTTTT
H. orientalis     TTC------------ATTATTTCTGCTACT------------------GATTCTGAAAAAAATACACTTTTT
H. longipes       TTC------------ATTATTTCTGCTACT------------------GATTCTGAAAAAAATACACTTTTT
L. volkensii      TTC------------ATTATTTCGGCTACT------------------GATTCTGAACAACATATACTTTTT
L. flavum         TTC------------ATTATTTCGGCTACT------------------GATTCTGAACAACATATACTTTTT
L. catharticum    TTC------------ATTGTTTCGCATACT------------------GATTCTGAACAACATATACTTTTT
L. arboreum       ------------------------------------------------------------------------
R. linoides       TTC------------ATTATTTCGGCTACT------------------GATTCTGAACAACATACACTTTGT
R. schomburgkii   TTC------------ATTATTTCCGCTACT------------------GACTCTGAAAAAAATACGCTTTTT
R. monsalveae     ------------------------------------------------------------------------
A. pubescens      TTC------------ATTATTTCGGCTACT------------------GATTCTCAGCAACATACACTTTTT
A. khasayama      TTC------------ATTATTTCGGCTACT------------------GATTCTCAGCAACATACACTTTTT
A. saxatilis      TTC------------ATTATTTCGGCTACT------------------GATTCTCAGCAACATACACTTTTT
L. comptonii      TTC------------ATTATTTCGGCTACT------------------GATTCTGAACAACATATACTTTTT
H. humiriifolia   TTC------------ATTATTTCTGCTACT------------------GATTCTGAAAAAAATACACTTTTT
I. griffithiana   TTC------------ATTATTTCTGCTACT------------------TATTCTGAAAAAAATACACTTTTT
P. magnifolia     TTC------------ATTATTTCTGCTACT------------------GATTCTGAAAAAAATACACTTTTT
T. sinensis       TTC------------ATTATTTCGGCTATT------------------GATTCTGAACAACATATACTTTTT
T. ovoidea        TTC------------ATTATTTCGGCTATT------------------GATTCTGAACAACATACACTTTTT
R. calophylla     ------------------------------------------------------------------------
AcalyphaInsulana  TTG------------ATTTTTTCTTCTAAT------------------GATTCTAATCAAAATAAATTTTTT
BalanopsPancheri  TTG------------ATTATTTCTATTAAT------------------GGTTCTAATCAAAATCGATTTATT
BischofiaJavanic  TTG------------ATTATTTCTGCTAAT------------------AATTCTAACCAAAATCCGTTTTTG
BruguieraGymnorh  TTA------------ATTATTTCTGCAAAT------------------GATTCTAACCAAAATCCATTTCTT
ByrsonimaCrassif  TTG------------ATTATTTCTGCTAAT------------------GATTCTAAACAAAATCGATTTTTT
MalpighiaGlabra   TTG------------GTTATTCCTGTTAAT------------------GATTCTAAACAAAATCGATTTTTT
CamptostylusMann  TTG------------GTTATTCCTGCTAAC------------------GATTCTAAACAAAATCGATTTTTT
ClusiaRosea       TTG------------ATTATTTCGGCTAAT------------------GAGTCTAACCAAAATCTATTTTTT
CratoxylumCochin  TTG------------ATTATTTCTGATAAT------------------GATTATAAACAAAATCTATTTTTT
CtenolophonEngle  ------------------------------------------------------------------------
DrypetesLittoral  TTG------------ATTATTTCTGCTGAT------------------GATTCTAACCAAAATCCATTTTTT
ElatineTriandra   TTG------------ATTATTTCTGCTAAT------------------GATTCGAACCAAAATCCGTTTTTT
ErythroxylumNovo  TTT------------CTTTTTTCTGGAAAG------------------AATTCCAACCAAAATCAATTTCTT
EuonymusHamilton  TTG------------ATTATTTCTACTAAT------------------TATTCTAACCAAAATCTATTTTTT
EuphorbiaHumifus  TTG------------ATTATTTCTGTTAAT------------------GATTCCAACCAAAATCCATTTTTT
EuphroniaGuianen  TTG------------ATTAGTTCTGTTAAT------------------GATTCTAATCAAAATCCATTTTTT
FlacourtiaIndica  TTG------------ATTATTTCTGCTAAT------------------GATTCTAACCAAAATCCATTTTTT
FlueggeaVirosa    TTG------------ATTATTTCGGCTAAT------------------AATTCTAACCAAAACTCGTTTTTT
GarciniaSubellip  TTG------------ATTATTTCTGCTAAT------------------GAGTCTAACAAAAATAGATTTTTT
GomphiaSerrata    TTG------------ATTATTTTTGCTAAT------------------GGTTCTAACCAAAATCGATTTATT
HumiriaBalsamife  TTG------------ATTATTTCTGCTAAT------------------GATTCTAACCAAAATCCATTTTTT
IonidiumCommune   TTG------------ATTTTTTCTATTAAT------------------GATTCTAATCAAAATCCTGTTTTT
IrvingiaMalayana  TTG------------ATTGTTTCTACTAAT------------------AATTCTAAAAAAAATTCATTTTTT
IxonanthesReticu  TTA------------ATTATTTTTTCTAAT------------------GATTTTAACCAAAATACATTTTTT
JatrophaIntegerr  TTGGTTTTTTTTTTCTTTTTTTCTGCTAAT------------------GATTCTAACCAAAATTCATTTTTT
KiggelariaAfrica  TTG------------ATTAGTTCTATTAAT------------------GATTCTAATCAAAATAAATTTTTT
LacistemaAggrega  TTG------------ATTATTTCTGCTAATAATTCTAACCAAAATAGAAATTCTAACCAAAATAGATTTTTT
LunaniaParviflor  TTA------------ATTATTTCTGCTAAT------------------GATTCGAACCAAAATCGATTTTTT
ManihotEsculenta  TTG------------ATTCTTTCTGCTAAT------------------GATTCTAACCAAAATCTATTTTTT
OxalisCorniculat  TTG------------ATTTTTTCTACTAAT------------------GATTCTGCTAAAAACCCCTTTTTT
PassifloraQuadra  TTT------------ATTTTGTCTTTTAAT------------------GATTCGAACCAAAATCGATTTTTT
PhyllanthusFlexu  TTG------------ATTATTTCTGCTAAT------------------AATTCTAAACAAAACTCGTTTTTT
PimelodendronGri  TTG------------ATTATTTCTGCTAAT------------------GATTCTAACCAAAATCAATTTTTT
RicinusCommunis   TTG------------ATTATTTCTGCTAAT------------------GATTCTAATCAAAATCCATTTTTT
SacoglottisSp     TTG------------ATTATTTCTGCTAAT------------------GATTCTAACCAAAATCCATTTTTT
ScageaOligostemo  TTG------------ATTTTTTTTACTAAA------------------GATTCTAACCAAAATTGGTTTTTT
TrigoniaBolivian  TTG------------ATTAGTTCTATTAAT------------------GATTCTAATCAAAATAAATTTTTT
AlbiziaTomenosaJ  TTG------------ATTATTTCTGCTAAT------------------AATTCTAACAAAAATCCATTTTGG
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KerriaJaponica   TTG------------ATTATTTCCGATAAT------------------TATTCTAACCAAAATAAATTTTTT
DatiscaCannabina TTG------------ATTATTTCCACTAAT------------------CATTATAACCAAAATCCATTTTTG
QuercusRubra     TTG------------AAAATTTCTGCTAAT------------------GATTCTAAACAAAATCCATTTTTT



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Taxon/Node       567890123456789012345678901234567890123456789012345678901234567890123456
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L. lewisii       AGGTATAACAACATTTTGTATTTTCAAATGATATCGGTGGGACTTGCAACCATTATCGAAATTCCATTTTCT
L. perenne       AGGTATAACAACATTTTGTATTTTCAAATGATATCGGTGGGACTTGCAACCATTATCGAAATTCCATTTTCT
L. pratense      AGGTATAACAACATTTTGTATTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCT
L. narbonense    AGGTATAACAACATTTTGTATTCTCAAATGATATCAGCGGGACTTGCAACCATTATAGAAATTCCATTTTCT
C. selaginoides  AGGTATAACAACATTTTGTATTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCT
L. hirsutum      AGGTATAACAACATTTTGTATTCTCAAATGATATCAGCGGGACTTGCAGCCATTATCGAAATTCCATTTTCT
L. hypericifoliumAGGTATAACAACATTTTGTATTCTCAAATGATATCAGCGGGACTTGCAGCCATTATCGAAATTCCATTTTCT
L. usitatissimum AGGTATAACAACATTTTGTATTCTCAAATGGTATCAGCGGGACTTGGAACCATTATAGAAATTCCATTTTCT
L. nervosum      AGGTATAACAACATTTTGTATTTTCAAATGATATCGGCGGGACTTGCAACCATTATCGAAATTCCATTTTCT
L. bienne        AGGTATAACAACATTTTGTATTCTCAAATGGTATCAGCGGGACTTGGAACCATTATAGAAATTCCATTTTCT
L. monogynum     AGGTATAACAACATTTTGTATTCTCAAATGATATCAGCGGGACTTGGAACCATTATAGAAATTCCATTTTCT
L. suffruticosum AGGTATAACAACATTTTGTATTCTCAAATGATATCAGAGGGACTCGCAGTTATTATCGAAATTCCCTTTTCT
H. clevelandii   AGGTATAACAACATTTTGTATTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCT
H. disjunctum    AGGTATAACAACATTTTGTATTCTCAAATGATATCAGAGGGACTTTCAGTTATTATCGAAATTCCATTTTCT
L. berlandieri   AGGTATAACAACATTTTGTATTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCT
L. rupestre      AGGTATAACAACATTTTGTATTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCT
D. pentagyna     AGGTACAACAACACTTTGTATTCTCAAATGATATCAGAGGGGCTTGCAGTCATTGTGGAAATTCCATTTTCT
R. indica        AGGTACAACAACATTTTGTATTCTCAAATGATATCAGAGGGACTTGCAGTCATTATCGAAATTCCATTTTCT
H. drymarioides  AGGTATAACAACATTTTGTATTCTCAAATGATATCAGAGGGACTTGCAGTTATTCTCGAAATTCCATTTTCT
H. micranthum    AGGTATAACAACATTTTGTATTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCT
H. castaneifolia AGGTACAACAACACTTTGTATTCTCAAATGATATCAGAGGGTCTTGCAGTCATTGTGGAAATTCCATTTTCT
S. digynum       AGGTATAACACCATTTTGTATTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCT
L. oligophyllum  AGGTATAACAACATTTTGTATTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCT
H. neblinae      AGGTACAACAACACTTTGTATTCTCAAATGATATCAGAGGGGCTTGCAGTCATTGTGGAAATTCCATTTTCT
H. mystax        AGGTACAACAACACTTTGTATTCTCAAATGATATCAGAGGGGCTTGCAGTCATTGTGGAAATTCCATTTTCT
H. busseana      AGGTACAACAACACTTTGTATTCTCAAATGATATCAGAGGGTCTTGCAGTCATTGTGGAAATTCCATTTTCT
H. gabunensis    AGGTACAACAACACTTTGTATTCTCAAATGATATCAGAGGGTCTTGCAGTCATTGTGGAAATTCCATTTTCT
H. obtusifolia   AGGTACAACAACACTTTGTATTCTCAAATGATATCAGAGGGTCTTGCAGTCATTGTGGAAATTCCATTTTCT
H. neocaledonic  AGGTACAACAACACTTTGTATTCTCAAATGATATCAGAGGGGCTTGCAGTCATTGTGGAAATTCCATTTTCT
H. penicillanth  AGGTACAACAACACTTTGTATTCTCAAATGATATCAGAAGGGCTTGCAGTCATTGTGGAAATTCCATTTTCT
H. spicata       AGGTACAACAACACTTTGTATTCTCAAATGATATCAGAGGGTCTTGCAGTCATTGTGGAAATTCCATTTTCT
H. planchoni     AGGTACAACAACACTTTGTATTCTCAAATGATATCAGAGGGTCTTGCAGTCATTGTGGAAATTCCATTTTCT
H. orientalis    AGGTACAACAACACTTTGTATTCTCAAATGATATCAGAGGGTCTTGCAGTCATTGTGGAAATTCCATTTTCT
H. longipes      AGGTACAACAACACTTTGTATTCTCAAATGATATCAGAGGGTCTTGCAGTCATTGTGGAAATTCCATTTTCT
L. volkensii     AGGTATAACAACATTTTGTATTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCT
L. flavum        AGGTATAACAACATTTTGTATTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCT
L. catharticum   AGGTATAACAAGATTTTGTATTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCGTTTTCT
L. arboreum      ------------------------------------------------------------------------
R. linoides      AGGTACAACAACATTTTGTATTCTCAAATGATATCAGAGGGCCTTGCAGTTATTATCGAAATTCCATTTTCT
R. schomburgkii  AGGTACAACAACACTTTGTATTCTCAAATGATATCAGAGGGGCTTGCAGTCATTGTGGAAATTCCATTTTCT
R. monsalveae    ------------------------------------------------------------------------
A. pubescens     AGGTACAACAACATTTTGTATTCTCAAATGATATCAGAGGGACTTGCAGTCATTATTGAAATTCCATTTTCT
A. khasayama     AGGTACAACAACATTTTGTATTCTCAAATGATATCAGAGGGACTTGCAGTCATTATTGAAATTCCATTTTCT
A. saxatilis     AGGTACAACAACATTTTGTATTCTCAAATGATATCAGAGGGACTTGCAGTCATTATTGAAATTCCATTTTCT
L. comptonii     AGGTATAACAACATTTTGTATTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCT
H. humiriifolia  AGGTACAACAACACTTTGTATTCTCAAATGATATCAGAGGGGCTTGCAGTCATTGTGGAAATTCCATTTTCT
I. griffithiana  AGGTACAACAACACTTTGTATTCTCAAATGATATCAGAGGGGCTTGCAGTCATTGTGGAAATTCCATTTTCT
P. magnifolia    AGGTACAACAACACTTTGTATTCTCAAATGATATCAGAGGGGCTTGCAGTCATTGTGGAAATTCCATTTTCT
T. sinensis      AGGTACAACAACATTTTGTATTCTCAAATGATATCAGAGGGACTTGCAGTCATTATCGAAATTCCATTTTAT
T. ovoidea       AGGTACAACAACATTTTGTATTCTCAAATGATATCAGAGGGACTTGGAGTCATTATCGAAATTCCATTTTCT
R. calophylla    ------------------------------------------------------------------------
AcalyphaInsulana AGGTACAACAAGAATTTGTATTATCAAATGGTATCAGAGGGCTTTGCGGTTATTGTGGAAATTCCATTTTCC
BalanopsPancheri AGGTACAATAAGAATTTTTATTCTCAAATGATATCAGAGGGGTTTGCGGTCATTGTGGAAATTCCATTTTCC
BischofiaJavanic AGGTACAACAAGAATTTGTATTATCAAATGATATCGGAGGGGGTTACAGTCATTGTGGAAATTCCATTTTCC
BruguieraGymnorh AGGTACAATAAGAATTTATATTCGCAAATGATATCCGAGGGGTTTGCAGTCGTTGTGGAAATTCCATTTTGT
ByrsonimaCrassif AGGTACAACAGGAATTTGTATTTTCAAATTATATCCGAGGGCTTTGCAGTCATTGTGGAAATTCCGTTTGCC
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MalpighiaGlabra   AGGTACAACAAGAATTTGTATTTTCAAATGATATCCGAGGGGTTTGCAGTTATTGTGGAAATTCCGTTTGCC
CamptostylusMann  AGGTACAATAAGAATTTGTATTTTCAAATGATATCCGAGGGGTTTGCAGTCATTGTGGAAATTCCGTTTGCC
ClusiaRosea       AGATACAACACTAATTTGTATTATCAAATAATATTGGAGGGGTTTGCAATTATTGTGGAAATTCCATTTTCC
CratoxylumCochin  ATATACAACAACCATTTGTATTCTCAAATAATATTAGAGGGGTTTGCACTCAGTGTGGAAATTCCATTTTCG
CtenolophonEngle  ------------------------------------------------------------------------
DrypetesLittoral  AGGTACAACAAGAATTTGTATTTTCAAACGATATCAGAGGGGTTTGCAGTTATTGTGGAAATCCCATTTTCC
ElatineTriandra   AGGTATAACAAGAATTTGTATTATCAAATGATATCCGAGGGGTTTTCAGTTATTGTGGAAATTCCTTTTTCT
ErythroxylumNovo  AGGTACAACAAGAATTTGTATTCTCAAATGATATCAGAGGGGTTTGCTGTCGTTGTGGAAATTCCATTTTCC
EuonymusHamilton  AAATGCAACAAGAATTTATATTATCAAATGATATCAGAGGGTTTCTCAGTGATTGTGGAAATTCCATTTTCC
EuphorbiaHumifus  AGGTACAACAAGAATTTGTACTATCAAATGATATCGGAGGGCTTCGCAGTTATTGTGGAAATTCCATTTTCC
EuphroniaGuianen  AGGTACAATAAAAAATTGTATTCTCAAAAGATATCAGAAGGTTTTTCAGTTATTGTGGAAATTCCATTTTTT
FlacourtiaIndica  AGGTATAACAAAAATTTGTATTTTCAAAGGATATCGGAGGGGTTTGCAGTTATTGTGGAAATTCCATTTTCC
FlueggeaVirosa    AAGTACAACAAGAGTTTGTATTCTCAAATGATATCGGCGGGGGTTGCAGTTATTGTGGAAATTCCATTTTCC
GarciniaSubellip  AGATCCAACACTAAGTTGTATTATCAAATAATATCGGGGGGGTTTGCAATTATTGTAGAAATTCCATTTTCC
GomphiaSerrata    AGGTACAATAATAACTTTTATTCTCAAATGATATCAGAAGGGTTTACGGTCATTGTGGAAATTCCATTTTCC
HumiriaBalsamife  AGGTACAACAAGAATTTGTATTCTCAAATGATATCAGAGGGGTTTGCAGTCATTGTGGAAATTCCATTTTCC
IonidiumCommune   AGGTACAACAAGAATTTGCATTCTCAAACGATATCGGGGGTGCTTGTAGTTATTGTAGAAATTCCATTTTCG
IrvingiaMalayana  AGGTACAACAAGAGTCTGTATTTTCAAACGATATCAGAGGGGTTTGCAGTCATTGTAGAAATTCCATTTTCT
IxonanthesReticu  AGGTACAATAAGAATTTGTATTCGCAAATGATATCAGAGAGCGTTGCGGTCATTATGGAAATTCCACTTTCC
JatrophaIntegerr  AAGTACAACAAGAATTTGTATTATCAAATGATATCAGAGAGCTTTGCAGTTATTGTGGAAATTCCATTTTCT
KiggelariaAfrica  AGGTACAATAAGAATTTGTATTCTCAAACGATATCAGAAGGGTTTGCAGTTATTGTGGAAATGCTATTTTTC
LacistemaAggrega  AGGTACAACAAAAATTTTTATTTTCAAATGATATCGGAGGGGTTTGCAGTCATTGTGGAAATTCCACTTTCC
LunaniaParviflor  AGGTATAACAAAAATTTGTATTCTCAAATGATATCGGAAGGGTTTGCAGTCATTGTGGAAATTCCATTTTCA
ManihotEsculenta  AGGTACAACAAGAATTTGTATTATCAAATGATATCAGAGGGCTTTGCAGTTATTGTGGAAATTCCATTTTCC
OxalisCorniculat  TGGTACAACAAGAATTTCTATTCTCAAATGTTATCAGAAGGGCTTGCGGTTATTGTGGAAATTTCATTTTCC
PassifloraQuadra  AGATACAACAAAAAATTGTATTCTAAAATGATATCAGAAGGCTTTTCTGTTATTGTGGAAATTCCATTTTCC
PhyllanthusFlexu  AAGTACAACAAAAGTTTGTATTTTCAAATGATATTGGCGGGGGTTGCTGTTATTGTGGAAATTCCATTTTCC
PimelodendronGri  AGGTACAACAAGAATTTGTATTATCAAATGATATCAGAAGGCTTTGCGGTTATTGTGGAAATTCCATTTTCC
RicinusCommunis   AAGTACAACAAGAATTTATATTATCAAATGATATCAGAGGGCTTTGCAGTTATTGTGGAAATTCCATTTTCC
SacoglottisSp     AGGTACAACAATAATTTGTATTCTCAAATGATATCAGAGGGGTTTGCAGTCATTGTGGAAATTCCATTTTCC
ScageaOligostemo  AGGTACAACAAGAATTTGTATTCTCAAATGATATCAGAGGGAGTTGCAATCATTGTGGAAATTCCATTTTTC
TrigoniaBolivian  AGGTACAATAAGAATTTGTATTCTCAAACGATATCAGAAGGGTTTGCAGTTATTGTGGAAATGCTATTTTTC
AlbiziaTomenosaJ  GGGTACAACAAGAATTTGTATTCTCAAATAATATCAGAGGGGCTTGCCGTCAGTGTGGAAATTCCATTTTCC
KerriaJaponica    GGGTACAACAAAAATTTGTATTCTCAAATGATATCGGAAGGATTTGCAGTCATTGTGGAAATTCAGTTTTCC
DatiscaCannabina  GGGTACAACAAAAATTTGTATTCTCCAATTCTATCAGAAGGGTTTGCACTCATTGTGGAAATTCCATTTTCC
QuercusRubra      GGGTACAACAAGAATTTGCATTCTAAAATTCTATCAGAAGGATTTGCAATCATTGTGGAAATTCCATTTTAT


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Taxon/Node        789012345678901234567890123456789012345678901234567890123456789012345678
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L. lewisii        CTAAAATCGTTATGCTCT------TTCGAAAGGTTACAT------ATAGTAAAATCTCAAAATTTAAGATCA
L. perenne        CTAAAATCGTTATGCTCT------TTCGAAAGGTTACAT------ATAGTAAAATCTCAAAATTTAAGATCA
L. pratense       CTACGATTAGGATCTGCT------TTAGAAAGGTTAGAA------GTAGTCAAATCACAAAATTTACGATCA
L. narbonense     CTACGATTAGTATCTTCT------TTCAAAAAGTTACAA------ATAGTCAAATCCCAAAATTTACGATCA
C. selaginoides   CTACGATTAGTATCGGCT------TTAGAAAGGTTAGAA------GTAGTAAAATCCCAAAATTTACGATCA
L. hirsutum       CTACGATTAGTATCCTCT------TTAGAAAGGTTAGAA------ATAGTCAAATCCCAAAATTTACGATCA
L. hypericifoliumCTACGATTAGTATCCTCT------TTAGAAAGGTTAGAA------ATAGTCAAATCCCAAAATTTACGATCA
L. usitatissimum CTACGATTAGTATCTTCT------TTCAAAAAGTTACAA------ATAGTCAAATCCCAAAATTTACGATCA
L. nervosum       CTACGATCGTTATCCTCT------TTCGAAAGGTTACAA------ATAGTAAAATCTCAAAATTTACGATCA
L. bienne         CTACGATTAGTATCTTCT------TTCAAAAAGTTACAA------ATAGTCAAATCCCAAAATTTACGATCA
L. monogynum      CTACGCTTAGTATCTTCT------TTCAAAAAGTTACAA------ATAGTCAAATCCCAAAATTTACGATCA
L. suffruticosum CTACGATTAGTATCCGCT------TTAGAAAGGCTAGAA------GTAGTCAAATCCCAAAATTTACGATCA
H. clevelandii    CTACGATTAGTATGCGCT------TTAGAAAGGTTAGAA------GTAGTAAAATCCCAAAATTTACGATCA
H. disjunctum     CTACGATTAGTATCCGCT------TTAGAAAGGTTAGAA------GTAGTAAAATCCCAAAATTTACGATCA
L. berlandieri    CTACGATTAGGATCTGCT------TTAGAAAGGTTAGAA------GTAGTCAAATCACAAAATTTACGATCA
L. rupestre       CTACGATTAGTATCCGCT------TTAGAAAGGTTAGAA------GTAGTCAAATCCCAAAATTTACGATCA
D. pentagyna      CGACGATTAGTATCCTCT------TTAGAAAGGTCAGAG------ATAGTCAAATCCCATAATTTACGATCA
R. indica         CTACGATTAGTATCCTCT------TTAGAAAGGTTAGAA------ATAGTAAAATCCCAAAATTTACGATCA
H. drymarioides   CTACGATTAGTATCCGCT------TTAGAAAGGTTAGAA------GTAGTAAAATCCCAAAATTTACGATCA
H. micranthum     CTACGATTAGTATCCGCT------TTAGAAAGGTTAGAA------GTAGTAAAATCCCAAAATTTACGATCA
H. castaneifolia CTACGATTAGTATCCTCT------TTAGAAAGGTCAAAG------ATAGTCAAATCCCATAATTTACGATCA
S. digynum        CTACGATTAGTATCCGCT------TTAGAAAGGTTCGAA------GTAGTAAAATCCCAAAATTTACGATCA
L. oligophyllum   CTACGATTAGTATCGGCT------TTAGAAAAGTTAGAA------GTAGTAAAATCCCAAAATTTACGATCA
H. neblinae       CTACGATTAGTATCCTCT------TTAGAAAGGTCAGAG------ATAGTCAAATCCCATAATTTACGATCA
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H. mystax         CTACGATTAGTATCCTCT------TTAGAAAGGTCAAAG------ATAGTCAAATCCCATAATTTACGATCA
H. busseana       CTACGATTAGTATCCTCT------TTAGAAAGGTCAAAG------ATAGTCAAATCCCATAATTTACGATCA
H. gabunensis     CTACGATTAGTATCCTCT------TTAGAAAGGTCAAAG------ATAGTCAAATCCCATAATTTACGATCA
H. obtusifolia    CTACGATTAGTATCCTCTTTAGATTTAGAAAGGTCAAAG------ATAGTCAAATCCCATAATTTACGATCA
H. neocaledonic   CGACGATTAGTATCCTCT------TTAGAAAGGTCAGAG------ATAGTCAAATCCCATAATTTACGATCA
H. penicillanth   CGACGATTAGTATCCTCT------TTAGAAAGGTCAGAG------ATAGTCAAATCCCATAATTTACGATCA
H. spicata        CTACGATTAGTATCCTCTTTAGATTTAGAAAGGTCAAAG------ATAGTCAAATCCCATAATTTACGATCA
H. planchoni      CTACGATTAGTATCCTCTTTAGATTTAGAAAGGTCAAAG------ATAGTCAAATCCCATAATTTACGATCA
H. orientalis     CTACGATTAGTATCCTCT------TTAGAAAGGTCAAAG------ATAGTCAAATCCCATAATTTACGATCA
H. longipes       CTACGATTAGTATCCTCT------TTAGAAAGGTCAAAG------ATAGTCAAATCCCATAATTTACGATCA
L. volkensii      CTACGATTAGTATCCGCT------TTAGAAAGGTTAGAA------GTAGTCAAATCCCAAAATTTACGATCA
L. flavum         CTCCGATTAGTATCCGCT------TTAGAAAGGTTAGAA------GTAGTCAAATCCCAAAATTTACAATCA
L. catharticum    TTACGATTAGTATCCGCT------TTAGAAAGCTTAGAA------GTAGTCAAATCCCAAAATTTACGATCA
L. arboreum       ------------------------------------------------------------------------
R. linoides       CTACGATTAGTATCCACT------TTAGAAAGCTTCGAA------GTAGTCAAATCCCAAAATTTACGATCA
R. schomburgkii   CTACGATTAGTATCCTCT------TTAGAAAGGTCAGAG------ATAGTAAAATCCCATAATTTACGATCA
R. monsalveae     ------------------------------------------------------------------------
A. pubescens      CTACGATTAGTATCCTCT------TTAGAAAGGTTAGAA------ATAGTCAAATCCCAAAATTTACGATCA
A. khasayama      CTACGATTAGTATCCTCT------TTAGAAAGGTTAGAA------ATAGTCAAATCCCAAAATTTACGATCA
A. saxatilis      CTACGATTAGTATCCTCT------TTAGAAAGGTTAGAA------ATAGTCAAATCCCAAAATTTACGATCA
L. comptonii      CTACGATTAGTATCCGCT------TTAGAAAGGTTAGAA------GTAGTCAAATCCCAAAATTTACGATCA
H. humiriifolia   CTACGATTAGTATCCTCT------TTAGAAAGGTCAGAG------ATAGTCAAATCCCATAATTTACGATCA
I. griffithiana   CTACGATTAGTATCCTCT------TTAGAAAGGTCAGAG------ATAGTAAAATCCCATAATTTACGATCA
P. magnifolia     CTACGATTAGTATCCTCT------TTAGAAAGGTCAGAG------ATAGTGAAATCCCATAATTTACGATCA
T. sinensis       CTACGATTAGTATCCTCTTTAGATTTAGCCAGCTTAGAA------ATAGTCAAATCCCAAAATTTACGATCA
T. ovoidea        CTACGATTAGTATCCTCTTTAGATTTAGACAGCTTAGAA------ATAGTCAAATCCCAAAATTTACGATCA
R. calophylla     ------------------------------------------------------------------------
AcalyphaInsulana  CTACGATTAGTATCTTCT------TTAGAAAGGTCAGAG------ATAGTCAAATCTCATAAATTACGATCA
BalanopsPancheri  CTACGATTTGTATTCTCT------TTAGAAAGGTCAAAA------ATAGTAAAATCTCATAATTTACGATCA
BischofiaJavanic  CTACGATTAGTATCTTCT------TTAGAAAAGTCAGAA------ATAGTAAAATCTCATAATATACGATCA
BruguieraGymnorh  CTACAATTAGTATCTTCT------TTAGAAGAGTCAGAA------ATAGTCAAATCTCATAATTTACGATCA
ByrsonimaCrassif  CCTCGATTAGTATCGTCC------TTAGAAAGGTCAGGA------ATACAAAAATCCCCTAATTTACGATCA
MalpighiaGlabra   CCTCGATTAATATCGTCC------TTAGAAAGGTCAGGA------ATACAAAAATCCCCTAATTTACGATCA
CamptostylusMann  CCTCGATTCGTATCGTCC------TTAGAAAGGTCAGGA------ATACAAAAATCCCCTAATTTACGATCA
ClusiaRosea       CTACGATTCATACCTTCT------TTAGAAAATTCAGAA------ATAGTCAAATTTCATAATTTACGATCA
CratoxylumCochin  CTACGATTTATGCCTTCT------TTAGAAAATTCAGAA------ATATTGAAATTTCAGAATTTACGATCA
CtenolophonEngle  ------------------------------------------------------------------------
DrypetesLittoral  CTACGATTAGTATCTTCT------TTAGAAAGGTCAGAA------ATAGTAAAATCTCATAATTTACGATCA
ElatineTriandra   CTGCGATTATTATCGTCT------TTAGAAAGGTCAGAA------ATAGTAAAATCTCCTAATTTACGATCA
ErythroxylumNovo  CTCCAATTAGTATCTTCT------TTAGACGGGTCAGAA------AGAGTAAAATCTCATAATTTACGATCA
EuonymusHamilton  CTCCGATTCGCACCTTCT------TTAGAAAGGTCCGAA------ATAGTCAAATCTCATAATTTACGATCA
EuphorbiaHumifus  CGACAATTAGGATCTTCT------TTAGAAAGGCCAGAG------ATAGTAAAATCGCATAAATTACGATCA
EuphroniaGuianen  TCCCGATTAGTATCTTTT------TTCCAAAGGTCCGAA------ATAGGGAAATCTCATGATTTACAATCA
FlacourtiaIndica  TTACGATTAGTATCCTCT------TTAGAAAGGTCAGAA------ATAGTAAAATCTCATAATTTACGATCA
FlueggeaVirosa    CTACGATTAGTGTCTTCT------TTAGAAAGGTCAGAA------ATAGTCAAATCTCATAATTTACGATCA
GarciniaSubellip  CTACGATTCGAACCTTCT------TTAGAAAATTCAGAA------ATAGTCAAATTTCATAATTTACGATCA
GomphiaSerrata    CTACGATTAGTATTCTCT------TTAGAAAGGTCAAAA------ATAGTAAAATCTCAGAATTTACGATCT
HumiriaBalsamife  CTACGATTAGTATTTTCT------TTAGAAAGGTCAGAA------ATAGTAAAATCTCATAATTTACGATCA
IonidiumCommune   CGACGATTAGTATCCCTT------TTAGAAAGGTCAGAA------ATAGTAAAATCTCATAATTTCCAATCA
IrvingiaMalayana  TTACGACTAGTATCTTCT------ATAGAAACGTTAGAA------ATAGTAAAATTTCGTAATTTACGATCA
IxonanthesReticu  TCACGATTAATACCTTCT------TTAGAAAGATCAGAATTCAAAATAGTAAAATTTCATAATTTACAATCA
JatrophaIntegerr  CTACGGTTAGTATCTTCT------TTAGAAAGGTCGGAG------ATAGTTAAATCTCATAAATTACGATCA
KiggelariaAfrica  CGACGATTACTATCTTCT------TTAGAAAGGACAGAATCAGAAATCGTAAAATCTCATGATTTACGATCA
LacistemaAggrega  CTACGATTAGTATCCTCT------TTAGAAAGGTCAGAA------ACAGTAAAATCTCATAATTTACGATCA
LunaniaParviflor  CTACGATTAGTATCCTCT------TTAGAAGGGTCAGAA------ATAGTCAAATCTCATAATTTACGATCA
ManihotEsculenta  CTACGATTAGTATCTTCT------TTAGAAAGGGATTTATCAGAGATAGTAAAATCTCATAAATTACGATCA
OxalisCorniculat  CTACGATTAGTATCGTCT------TTAGAAAGGTCAGAA------ATCATAAAATCTTATAATTTAAGATCC
PassifloraQuadra  CTACAATTAGTATCTTCT------TTAGAAAAGTTAAAA------ATAGTAAAATCTCATAATTTACGATCA
PhyllanthusFlexu  CTACGATTATTGTCTTCT------TTAGAAAAGTCAGAA------ATAGTAAAATCTCAAAATTTACGATCA
PimelodendronGri  CTACGATTAGTATCTTCT------TTAGGAAGGTCAGAG------ATAGTAAAATCTCATAAATTACGATCA
RicinusCommunis   CTACGATTAGTATCTTCT------TTAGAAAGGTCAGAG------ATAGTAAAATCTCATAAATTACGATCA
SacoglottisSp     CTACGATTAGTATTTTCT------TTAGAAAGGTCAGAA------ATAGTAAAATCTCATAATTTACGATCA
ScageaOligostemo  CTACGATTAGTATCTTCT------TTAAAAAGTTCAGAA------ATAGTAAAATCTCATAATTTACGATCA
TrigoniaBolivian  CGACGATTACTATCTTCT------TTAGAAAGGACAGAATCAGAAATCGTAAAATCTCATGATTTACGATCA
AlbiziaTomenosaJ  CTACAATTAATCTCTTCC------TTAGAGAAGGCAGAA------ATCATAAAATCCTATAATTTACGATCA
KerriaJaponica    GTACGATTAGTATCG---------------GCGACAGAA------ATCGTAAAATCTTACAATTTACGATCA
DatiscaCannabina  CTACGATTAGTATCTTCC------TTAGAGGAAGCAGAA------ATCGCAAAATCTTCTAATTTACGATCA
QuercusRubra      CTACGATTAATATCTTCT------TTAGAAGGGGCAGAA------ATCGTAAGATTTTACAATTTACGATCC
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Taxon/Node        901234567890123456789012345678901234567890123456789012345678901234567890
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L. lewisii        ATTCATTCAATATTTCCTTTTTTAGAGGATAAATTGGCACACTTAAATTATGTGTCAACTGGACTAATACCT
L. perenne        ATTCATTCAATATTTCCTTTTTTAGAGGATAAATTGGCACACTTAAATTATGTGTCAACTGGACTAATACCT
L. pratense       ATTCATTCAATATTTCCTTTTTTCGAGGACAAATTTCCACATTTAAATTATGTGTCANNNNNNNNNNNNNNN
L. narbonense     ATTCATTCAATATTTCCTTTTTTAGAAGATAAATTGACACACTTAAATTATGTGTCAACTGGGCTAATACCT
C. selaginoides   ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCGCATTTAAATTATGTGTCAACTGGACTAATACCT
L. hirsutum       ATTCATTCAATATTTCCTTTTTTAGAGGATAAATTTCCGCATTTAAATTATGTGTCAACTGGACTAATACCT
L. hypericifoliumATTCATTCAATATTTCCTTTTTTAGAGGATAAATTTCCGCATTTAAATTATGTGTCAACTGGACTAATACCT
L. usitatissimum  ATTCATTCACTATTTCCTTTTTTAGAAGATAAATTGACCCACTCAAATTATGTGTCAACTGGGCTAATACCT
L. nervosum       ATTCATTCAATATTTCCTTTTTTAGAGGATAAATTGGCACACTTAAATTATGTGTCTCAACTGGACTAATACCT
L. bienne         ATTCATTCACTATTTCCTTTTTTAGAAGATAAATTGACCCACTCAAATTATGTGTCAACTGGGCTAATACCT
L. monogynum      ATTCATTCACTATTTCCTTTTTTAGAAGATAAATTGACACACTTAAATTATGTGTCAACGGGGCTAATACCT
L. suffruticosum  ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAACTGGACTAATACCT
H. clevelandii    ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAACTGGACTAATACCT
H. disjunctum     ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAACTGGACTAATACCT
L. berlandieri    ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAACTGGACTAATACCT
L. rupestre       ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTGCCACATTTAAATTATGTGTCAACTGGACTAATACCT
D. pentagyna      ATTCATTCAATATTTCCTTTTTTAGAGGATAAATTTCCACATTTAAATTATGTGTCAAATGGACTAATACCT
R. indica         ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAACTGGATTAATACCT
H. drymarioides   ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAACTGGACTAATACCT
H. micranthum     ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAACTGGACTAATACCT
H. castaneifolia  ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAAATGTACTAATACCT
S. digynum        ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAACTGGACTAATACCT
L. oligophyllum   ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAACTGGACTAATACCT
H. neblinae       ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAAATGTACTAATACCT
H. mystax         ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAAATGTACTAATACCT
H. busseana       ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAAATGTACTAATACCT
H. gabunensis     ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAAATGTACTAATACCT
H. obtusifolia    ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAAATGTACTAATACCT
H. neocaledonic   ATTCATTCAATATTTCCTTTTTTAGAGGATAAATTTCCACATTTAAATTATGTGTCAAATGGACTAATACCT
H. penicillanth   ATTCATTCAATATTTCCTTTTTTAGAGGATAAATTTCCACATTTAAATTATGTGTCAAATGGACTAATACCT
H. spicata        ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAAATGTACTAATACCT
H. planchoni      ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAAATGTACTAATACCT
H. orientalis     ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAAATGTACTAATACCT
H. longipes       ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAAATGTACTAATACCT
L. volkensii      ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCGCATTTAAATTATGTGTCAACTGGACTAATACCT
L. flavum         ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAACGGGACTAATACCT
L. catharticum    ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAACTGGACTAATACCT
L. arboreum       ----------------CTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAACGGGACTAATACCT
R. linoides       ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCTCATTTAAATTATGTCTCAACTGGACTAATACCT
R. schomburgkii   ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAAATGTACTAATACCT
R. monsalveae     ------------------------------------------------------------------------
A. pubescens      ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAACTGGGCTAATACCT
A. khasayama      ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAACTGGGCTAATACCT
A. saxatilis      ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAACTGGGCTAATACCT
L. comptonii      ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAACTGGACTAATACCT
H. humiriifolia   ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAAATGTACTAATACCT
I. griffithiana   ATTCATTCAATATTTCCTTTTTTAGAGGATAAATTTCCACATTTAAATTATGTGTCAAATGTACTAATACCT
P. magnifolia     ATTCATTCAATATTTCCTTTTTTAGAGGATAAATTTCCACATTTAAATTATGTGTCAAATGTACTAATACCT
T. sinensis       ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTACACATTTAAATTATGTGTCAACTGGACTAATACCT
T. ovoidea        ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTACACATTTAAATTATGTGTCAACTGGACTAATACCT
R. calophylla     ------------------------------------------------------------------------
AcalyphaInsulana  ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAGATCTATTAATACCT
BalanopsPancheri  ATTCATTTAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTTGTGTCAGATGTACTAATAACT
BischofiaJavanic  ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTTCACATTTAAATTATGTGTCAGATGTGCTAATACCT
BruguieraGymnorh  ATTCATTCACTATTTCCTTTTTTAGAGGACAAATTTCCACATTAAATTATCTGTCAGATGGCTTAATACCT
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MalpighiaGlabra   ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCTGATCCACTAATACCT
CamptostylusMann  ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAGATGTACTAATATCT
ClusiaRosea       ATTCATTCAATATTTCCCTTTTTCGAGGATAAATTTCCACATTTAAATTATGTGTCAGATGGGTTAATACCC
CratoxylumCochin  ATTCATTCAATATTTCCTTTTTTAGAGGAACCATTTCCACATTTAAATTATGTATCAGATGGGTTACTACCC
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CtenolophonEngle --------------------------------ATTTCCACATTTAAATTATGTGTCAGATGTACTAATACCT
DrypetesLittoral ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTCAAGTATGTGTCAGATGTACTAATACCT
ElatineTriandra  ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTGATACATTTAAATTTTGTGTCCGATGTATTAATACCC
ErythroxylumNovo ATTCATTCACTATTTCCTTTTTTAGAGGATAAATTTCCACATTTAAATTATGTATCAGATGGATTCGTACCT
EuonymusHamilton ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTTCACATTTAAGTTCTGTATTAGATGTACTAATACCC
EuphorbiaHumifus ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCGCATTTAAATTATGTGGCAGATGTATTAATACCT
EuphroniaGuianen ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTGCCATATTTAAATTATGTGTCAGATGTACTAATACCA
FlacourtiaIndica ATTCATTCAATATTTCCTTTTTTAGAGGGCAAATTCCCACATTTAAATTATGTGTCAGATGGACTAATACCT
FlueggeaVirosa   ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCCCATTTAACTTATGTATCAGATGACTTAATACCT
GarciniaSubellip ATTCATTCAATATTTCCCTTTTGCGAGGATAAATTTCCACATTTAAATTATGTGTCAGATGTATTAATACCT
GomphiaSerrata   ATTCATTTAATATTTCCTTTTTTAGAGGACAAAATTCCACATTTAAATTATGTGTCAGATGGACTAATACCT
HumiriaBalsamife ATTCATTCAATATTTCCTTTTTTAGAAGACAAATTTCCACATTTAAATTATGTGTCAGATGTACTAATACCT
IonidiumCommune  ATTCATTCAATATTTCCTTTTTTAGAAGGTAAATTTCCACATTTAAATTATGTATTAGATGTACTAATACCT
IrvingiaMalayana ATTCATTCAATATTTCCTTTTTTAGAGGACAAAGTTCCACATTTAAATTATGTGTCAGATGTACTAATACCT
IxonanthesReticu ATTCATTCAATATTTCCTTTTTTAGAGGATAAATTTCCACATTTAAACTATGTGTCAGATGCACTAATACCT
JatrophaIntegerr ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAATTTATGTGTCAGATGTATTAATACCT
KiggelariaAfrica ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTGCCACATTTAAATTATGTGTCAGATGTACTAATATCT
LacistemaAggrega ATTCATTCAATATTTCCTTTTTTAGAGGGCAAATTCCCACATTTAAATTATGTGTCAGATGTACTAATACCT
LunaniaParviflor ATTCATTCAATATTTCCTTTTTTAGAGGGCAAATTCCCATATTTAAATTATGTGTCAGATGGGATAATACCT
ManihotEsculenta ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCGCATTTAAATTATGTGTCAGATATATTAATACCT
OxalisCorniculat ATTCATTCAATATTTCCTTTTTTAGAGGACAAACTGTCACATTTAAATTATGTGTTCGCTGTACTAATACCC
PassifloraQuadra ATTCATTCAATATTTTCTTTTTTAGAGGGCAAATTGTCGCATTTAAATTATACGTTAGATGTATTAATACCT
PhyllanthusFlexu ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCCCATTTAAGTTATGTATCAGATGTACAAATATCT
PimelodendronGri ATTCATTCAATATTTCCTTTTTTAGAAGACAAATTTCCACATTTAAATTATGTGTCAGATGTATTAATACCT
RicinusCommunis  ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAGATGTATTAATACCT
SacoglottisSp    ATTCATTCAATATTTCCTTTTTTAGAAGACAAATTTCCATATTTCAATTATGTGTCAGATGTGCTAATACCT
ScageaOligostemo ATTCATTCAATATTTTCGTTTTTAGAGGACAAATTTCCACATTTAAATTATGTGTCAGATCCATTAATACCT
TrigoniaBolivian ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTGCCACATTTAAATTATGTGTCAGATGTCCTAATACCT
AlbiziaTomenosaJ ATTCATTCAATATTTCCTTTTTTTGAGGAAAGATTTCCATATTTAAATTATGTGTCAGATGTACAAATACCC
KerriaJaponica   ATTCATTCAATATTTCCTTTTTTAGAGGACAAATTCCCACATTTAAATTATGTATCAGATGTACTAATACCC
DatiscaCannabina ATTCATTCAATATTTCCTTTTTTAGAGGATAAATTCCCACATTTAAATTATGTGTCAGATGTATTAATACCA
QuercusRubra     ATTCATTCAATATTTCCCTTTTTAGAGGAAAAGTTCCCACATTTAAATTATTCGGCGGATATACTAATACCC


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                 000000000111111111122222222223333333333444444444455555555556666666666777
Taxon/Node       123456789012345678901234567890123456789012345678901234567890123456789012
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L. lewisii       TACCCCATCCATCTCGAAAAATTGGTTCAAGCTGTTCGCTTCTGGATAAAAGATAGCGCGTGTTTGCATTTA
L. perenne       TACCCCATCCATCTCGAAAAATTGGTTCAAGCTGTTCGCTTCTGGATAAAAGATAGCGCGTGTTTGCATTTA
L. pratense      NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN
L. narbonense    TACCCTATCCACCTAGAAAAATTGGTTCAAGCCGTCCGCTTCTGGATAAAAGATACCGCGTGTTTGCATTTA
C. selaginoides  TACCCCATCCATCTAGAAAAGTTGGTTCAAGCCACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTA
L. hirsutum      TACCCCATCCATCTCGAAAAATTGGTTCAAGCCGTTCGCTTCTGGANNNNNNNNNNNNNNNNNNNNNNNNNN
L. hypericifoliumTACCCCATCCATCTCGAAAAATTGGTTCAAGCCGTTCGCTTCTGGATAAAAGACCCCGCTTGTTTGCATTTA
L. usitatissimum TACCCCATCCACCTCGAAAAATTGGTTCAAGCCGTTCGCTTCTGGANNNNNNNNNNNNNNNTGTTTGCATTTA
L. nervosum      TACCCCATTCATCTCGAAAAATTGGTTCAAGCTGTTCGCTTCTGGATAAAAGATAGCGCGTGTTTGCATTTA
L. bienne        TACCCCATCCACCTCGAAAAATTGGTTCAAGCCGTTCGCTTCTGGATAAAGGATACCGCGTGTTTGCATTTA
L. monogynum     TACCCCATCCACCTCGAAAAATTGGTTCAAGCCGTTCGCTTCTGGATAAAAGATACCGCGTGTTTGCATTTA
L. suffruticosum TACCCCATCCATCTAGAAAAGTTGGTTCAAGCCATTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTA
H. clevelandii   TACCCCATCCATCTAGAAAAGTTGGTTCAAGCCACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTA
H. disjunctum    TACCCCATCCATCTAGAAAAGTTGGTTCAAGCCACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTA
L. berlandieri   TACCCCATCCATCTAGAAAAGTTGGTTCAAGCCACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTA
L. rupestre      TACCCCATCCATCTAGAAAAGTTGGTTCAAGCCACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTA
D. pentagyna     TACCCCATCCATCTAGAAAAAATTGGTCCAAGCCATTCGCTACTGGATGAAAGATCCCTCTTGTTTGCATTTA
R. indica        TACCCCCTCCATCTAGAAAAAATTGGTTCAAGCCATTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTA
H. drymarioides  TACCCCATCCATCTAGAAAAGTTGGTTCAAGCCACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTA
H. micranthum    TACCCCATCCATCTAGAAAAGTTGGTTCAAGCCACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTA
H. castaneifolia TACCCCATCCATCTAGAAAAAATTGGTCCAAGCCATTCGCTACTGGATGAAAGATCCCTCTTGTTTGCATTTA
S. digynum       TACCCCATCCATCTAGAAAAGTTGGTTCAAGCCACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTA
L. oligophyllum  TACCCCATCCATATAGAAAAGTTGGTTCAAGCCACTCGCTTATGGATAAAAGATCCCGCTTGTTTGCATTTA
H. neblinae      TACCCCATCCATCTAGAAAAAATTGGTCCAAGCCATTCGCTACTGGATGAAAGATCCCTCTTGTTTGCATTTA
H. mystax        TACCCCATCCATCTAGAAAAAATGGGTCCAAGCCATTCGCTACTGGATNNNNNNNNNCGCTTGTTTGCATTTA
H. busseana      TACCCCATCCATCTAGAAAAAATTGGTCCAAGCCATTCGCTACTGGATGAAAGATCCCTCTTGTTTGCATTTA
H. gabunensis    TACCCCATCCATCTAGAAAAAATTGGTCCAAGCCATTCGCTACTGGATGAAAGATCCCTCTTGTTTGCATTTA
H. obtusifolia   TACCCCATCCATCTAGAAAAAATTGGTCCAAGCCATTCGCTACTGGATGAAAGATCCCTCTTGTTTGCATTTA
H. neocaledonic  TACCCCATCCATCTAGAAAAAATTGGTCCAAGCCATTCGCTACTGGATGAAAGATCCCTCTTGTTTGCATTTA
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H. penicillanth  TACCCCATCCATCTAGAAAAAATTGGTCCAAGCCATTCGCTACTGGATGAAAGATCCCTCTTGTTTGCATTTA
H. spicata       TACCCCATCCATCTAGAAAAAATTGGTCCAAGCCATTCGCTACTGGATGAAAGATCCCTCTTGTTTGCATTTA
H. planchoni     TACCCCATCCATCTAGAAAAAATTGGTCCAAGCCATTCGCTACTGGATGAAAGATCCCTCTTGTTTGCATTTA
H. orientalis    TACCCCATCCATCTAGAAAAAATTGGTCCAAGCCATTCGCTACTGGATGAAAGATCCCTCTTGTTTGCATTTA
H. longipes      TACCCCATCCATCTAGAAAAAATTGGTCCAAGCCATTCGCTACTGGATGAAAGATCCCTCTTGTTTGCATTTA
L. volkensii     TACCCCATCCATCTAGAAAAGTTGGTTCAAGCCATTCGCTTCTGGATAAAAGATCCAGCTTGTTTGCATTTA
L. flavum        TACCCCATCCATCTAGAAAAGTTGGTTCAAGCCATTCGCTTCTGGATAAAAGANNNNNCTTGTTTGCATTTA
L. catharticum   TACCCTATCCATCTAGAAAAGTTGGTTCAAGCCATTCGCTTCTGGATAAAAGATCCCGCTTGTTTACATTTA
L. arboreum      TACCCCATCCATCTAGAAAAGTTGGTTCAAGCCATTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTA
R. linoides      TACCCCATCCATCTAGAAAAAATTGGTTCAAGCCATTCGCTTTTGGATAAAAGATCCCGCTTGTTTGCATTTA
R. schomburgkii  TACCCCATCCATCTAGAAAAAATTGGTTCAAGCCATTCGCTACTGGATGAAAGATCCCTCTTGTTTGCATTTA
R. monsalveae    ------------------------------------------------------------TTGTTTGCATTTA
A. pubescens     TACCCCATCCATCTAGAAAAAATTGGTTCAAGCCATTCGCTTCGGGATAAAAGATCCCGCTTGTTTGCATTTA
A. khasayama     TACCCCATCCATCTAGAAAAAATTGGTTCAAGCCATTCGCTTCGGGATAAAAGATCCCGCTTGTTTGCATTTA
A. saxatilis     TACCCCATCCATCTAGAAAAAATTGGTTCAAGCCATTCGCTTCTGGATAANNNNNNNNGCTTGTTTGCATTTA
L. comptonii     TACCCCATCCATCTAGAAAAGTTGGTTCAAGCCACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTA
H. humiriifolia  TACCCCATCCATCTAGAAAAAATTGGTTCAAGCCATTCGCTACTGGATGAAAGATCCCTCTTGTTTGCATTTA
I. griffithiana  TACCCCATCCATCTAGAAAAAATTGGTCCAAGCCATTCGCTACTGGATGAAAGATCCCTCTTGTTTGCATTTA
P. magnifolia    TACCCCATCCATCTAGAAAAAATTGGTCCAAGCCATTCGCTACTGGATAANNNNNNNNNNNNNNNNNNNNNNN
T. sinensis      TACCCCATCCATCTAGAAAAGTTGGTTCAAGCCATTCGCTTCGGGATAAAAGATCCCGCTTGTTTGCATTTA
T. ovoidea       TACCCCATCCATCTAGAAAAGTTGGTTCAAGCCATTCGCTTCGGGATAAAAGATCCCGCTTGTTTGCATTTA
R. calophylla    ------------------------------------------------------------------------
AcalyphaInsulana TACCCCATCCATCTTGAAAAATGGGTTCAAATTCTTCGATATTGGCTGAAAGATCCCTCTTCTTTGCATTTA
BalanopsPancheri TTCCCCATCCATCTAGAAAAAATTGGTTCAAACCCTTCGCTATTGGGTGAAAGATCCTTCTTCTTTGCATTTA
BischofiaJavanic TACCCTATCCATCTAGAAAAAATTGGTTCAAACCCTTCGCTACTGGGTGAAAGATCCCTCTTCTTTGCATTTA
BruguieraGymnorh TACCCCATCCATATAGAAAAAATTGGTTCAAACCCTTCGCTACTGGGTAAAAGATCCCTCTTCTTTGCATTTA
ByrsonimaCrassif TACCCCATCCATCTAGAAAAAATTGGTTCAAATCCTTCGTTACTGGGTGAAGGATCCCTCTTCTTTGCATTTA
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CamptostylusMann TTCCCCATCCATCTAGAAAAAATTGGTTCAAATCCTTCGTTACCGGGTGAAAGATCCCTCTTCTTTGCATTTA
ClusiaRosea      TATCCCATTCATCTAGAAAAAATTAGTTCAAACAATTCGCTACTGGATCAAGGATCCCTCTTTTTTGCATTTA
CratoxylumCochin TACCCCATTCATATAGAAAAAGTGGTTCAAACCCTTCGGTACTGGCTGAAAGATCCTTCTTCTTTGCATTTA
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DrypetesLittoral TACCCCATCCATCTAGAAAAAATTAGTTCAAACCCTTCGCTACTGGGCGAAAGATCCCTCTTCTTTGCATTTA
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ErythroxylumNovo TATCCCATCCATCTGGAAAAAATTAGTTCAAATCCTTCGCTACTGGGTGAAAGATCCCTCTTCTTTGCATTTA
EuonymusHamilton TATCCGATCCATCTGGAAATCCTGGTTCAAATCCTTCGATGCTGGGTGAAAGATGTTTCTTCTTTGCATTTA
EuphorbiaHumifus TACCCCATTCATCTCGAAAAAATTGGTCCAAACCCTTCGTTATTGGTTGAAAGACCCTTCTTATTTGCATTTT
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FlacourtiaIndica TACCCCATCCATCTAGAAAAAATTGGTTCAAATCCTTCGCTCTTGGGTGAAAGATCCCTCCTCTTTGCATTTA
FlueggeaVirosa   TACCCCATCCATATAGAAAAAATTGGTTCAAACCCTTCGCTACTGGGTCAAAGATACTTCTTCTTTGCATTTA
GarciniaSubellip TACCCCATCCATATAGAAAAAATTAGTTCAAACCATTCGCTACTGGATGAAGGATCCTTCTTTTTTGCATTTA
GomphiaSerrata   TACCCCATCCATATAGAAAAAATTGGTTCAAACTCTTCGCTACTCAGTAAGAGATCCTTCTTCCTTACATTTA
HumiriaBalsamife TACCCCATCCATATAGAAAAAATTGGTTCAAACCCTTCGCTATTGGGTGAAAGATCCCCCTTCTCTGCATTTA
IonidiumCommune  TACCCTATCCATCTAGAAAAAATGGGTTCAAATCCTTCGCTACTGGCTAAGAGATCCTTCTTCTTTGCATTTA
IrvingiaMalayana TACCCCATCCATCTAGAAAAAATTGGTTCAAAACCTTCGCTACTGGGTGAAAGATCCCTCTTCCTTGCATTTA
IxonanthesReticu TACCCTATCCATTTAGAAAAAATTGGTTCAAGCCCTTTGCCACTGGGTGAAAGATTTCTCGTCTTTGCATTTA
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RicinusCommunis  TACCCCATCCATCTAGAAAAAATTGGTTCAAATCCTTCGCTATTGGGTGAAAGATCCCTCTTCTTTGCATTTA
SacoglottisSp    TATCCCATCCATCTAGAAAAAATTGGTTCAAACCCTTCGCTATTGGGTGAAAGATCCCTCTTCTTTGCATTTA
ScageaOligostemo TACCCCATCCATATAGAAAAAATTGGTGCAAACCTTTCGTTACTGGGTGAAAGATCCCTCTTCTTTGCATTTA
TrigoniaBolivian TACCCCATCCATATAGAAAAAATTAGTTCAAATCCTTCGATATTGGATGAAAGATCCTTCCTCTTTGCATTTA
AlbiziaTomenosaJ TACCCTATACATCTGGAAATCTTGATTCAAACCCTTCGATACTGGGTGAAAGATGCCTCCTCCTTTCATTTA
KerriaJaponica   TACCCCATTCATCTGGAAATCTTGGTTCAAACACTTCGCTATTGGGTGAAAGATCCCTCTTCTTTGCATTTA
DatiscaCannabina TATCCCCTCCATCTGGAAATTTTGGTTCAAATTCTTCGCTACTGGGTGAAAGATGCCTCTTCTTTACATTTA
QuercusRubra     TACCCTGCCCATCTGGAAATATTGGTTCAAACCCTTCGTTACCGGGTGAAAGATGCTTCTTATTTGCATTTA


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Taxon/Node     345678901234567890123456789012345678901234567890123456789012345678901234
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L. lewisii     TTACGGCTTTTTTTTCATGAGTATTCGAATTGGAACAGTCAATTTATTTCGAATAAATTGATTTCTATTTAT
L. perenne     TTACGGCTTTTTTTTCATGAGTATTCGAATTGGAACAGTCAATTTATTTCGAATAAATTGATTTCA--TTTA
L. pratense    NNNNNNNNNNNNNNNNNNGAGTATTCGAATTGGAACAGTCAATTTATTTCGAATAAATTGATTTCTATTTTT
L. narbonense  TTACGACTTTTTTTTCACGAGTATTGGAGTTGGAAGAGTCAATTGATTTCGAATAAATTCTTTTCCATTTTG
C. selaginoides TTACGACTCTTTTTTCACGAGTATTGGAATTGGAATAGTCTTTTTTTTTCGAAGAAATTTCGTTCCGTTTTT
L. hirsutum    NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNTTTTATTTCGAACAAGTTTATTTACGTTTTT
L. hypericifoliumTTACGACTCTTTTTTCACGAGTATTGGAATTGGAACAGTCTTTTTATTTCGAACAAGTTTATTTACGTTTTT
L. usitatissimum TTACGACTCTGTTTTCACGAGTATTGGAATTGGAACAGTCTTTTTATTTCGAACAAGTTTATTTACGTTTTT
L. nervosum    TTACGGCTTTTTTTTCATGAGTATTCCAATTGGAACAGTCTTTTTATTTCGAATAAATTGATTTCTATTTTT
L. bienne      TTACGACTTTTTTTTCACGAGTATTGGGGTTGGAAGAGTCAAATTTTTTCGACTAATTTTTTTTCCATTCCT
L. monogynum   TTACGACTTTTTTTTCACGAGTATTGGCGTTCGAAGAGTCAATTTATTTCGAATAATTTTTTTTCCGTTCCC
L. suffruticosum TTACGACTCTTTTTTCACGAGTATTGGAATTGGAATAATCTTTTTTTTTCGAAGAAATTTCGTTCCGTTTTT
H. clevelandii TTACGACTCTTTTTTCACGAGTAT------TGGAATAGTCTTTTTTTTTCGAAGAAATTTCGTTCCGTTTTT
H. disjunctum  TTACGACTCTTTTTTCACGAGTAT------TGGAATAGTCTTTTTTTTTCGAAGAAATTTCGTTCCGTTTTT
L. berlandieri TTACGACTCTTTTTTCACGAGTATTGGAATTGGAATAGTCTTTTTTTTTCGAAGAAATTTCGTTCTGTTTTT
L. rupestre    TTACGACTCTTTTTTCACGAGTATTGGAATTGGAATAGTCTTTTTTTTTCGAAGAAATTTCGTTCCGTTTTT
D. pentagyna   TTACGACTCTTTTTTCATGAGTATTGGAATTGGAACAGTCTTTTTTTTTCAAAGAAATCTATTTCCGTTTTT
R. indica      TTACGACTCTTTTTTCACGAGTATTGGAATTGGAACAGTCTTTTTATTTCGAAGAAATTTCTTTCCGTTTTT
H. drymarioides TTACGACTCTTTTTTCACGAGTAT------TGGAATAGTCTTTTTTTTTCGAAGAAATTTTGTTCCGTTTTT
H. micranthum  TTACGACTCTTTTTTCACGAGTAT------TGGAATAGTCTTTTTTTTTCGAAGAAATTTCGTTCCGTTTTT
H. castaneifolia TTACGACTCTTTTTTCATGAGTATTGGAATTGCAACAGTCTTTTTATTTCAAAGAAATCTATTTCCGTTTTT
S. digynum     TTACGACTCTTTTTTCACGAGTATTGGAATTGGAATAGTCTTGTTTTTTCGAAGAAATTTCGGTCCGTTTTT
L. oligophyllum TTACGACTCTTTTTTCACGAGTATTGGAATTGGAATAGTCTTTTTTTTTCGAAGAAATTTCGTTCCGTTTTT
H. neblinae    TTACGACTCTTTTTTCACGAGTATTGGAATTGGAACAGTCTTTTTATTTCAAAGAAATCTATTTCCATTTTT
H. mystax      TTACGACTCTTTTTTCATGAGTATTGGAATTGGAACAGTCTTTTTATTTCAAAGAAATCTATTTCCGTTTTT
H. busseana    TTACGACTCTTTTTTCATGAGTATTGGAATTGGAACAGTCTTTTTATTTCAAAGAAATCTATTTCCGTTTTT
H. gabunensis  TTACGACTCTTTTTTCATGAGTATTGGAATTGGAACAGTCTTTTTATTTCAAAGAAATCTATTTCCGTTTTT
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H. penicillanth TTACGACTCTTTTTTCATGAGTATTGGAATTGGAACAGTCTTTTTTTTTCAAAGAAATCTATTTCCGTTTTT
H. spicata     TTACGACTCTTTTTTCATGAGTATTGGAATTGGAACAGTCTTTTTATTTCAAAGAAATCTATTTCCGTTTTT
H. planchoni   TTACGACTCTTTTTTCATGAGTATTGGAATTGGAACAGTCTTTTTATTTCAAAGAAATCTATTTCCGTTTTT
H. orientalis  TTACGACTCTTTTTTCATGAGTATTGGAATTGCAACAGTCTTTTTATTTCAAAGAAATCTATTTCCGTTTTT
H. longipes    TTACGACTCTTTTTTCATGAGTATTGGAATTGGAACAGTCTTTTTATTTCAAAGAAATCTATTTCCGTTTTT
L. volkensii   TTACGACTCTTTTTTCACGAGTATTGGAATTGGAATAATCTTTTTTTTTCGAATAAATTTCGTTCCGTTTTT
L. flavum      TTACGACTCTTTTTTCACGAGTATTGGAATTGGAACAGTCTTTTTTTTTCGAAGAAATTTCGTTCTGTTTTT
L. catharticum TTACGACTCTTTTTTCACGAGTATTGGAATTGGAACAGTCTTTTTTTTTCGAAGAAATTTCGTTCCGTTTTT
L. arboreum    TTACGACTCTTTTTTCACGAGTATTGGAATTGGAACAGTCTTTTTTTTTCGAAGAAATTTCGTTCTGTTTTT
R. linoides    GTACGACTCTTTTTTCACGAGTATTGGAATTGGAACAGTCTTTTTGTTTCGAAGAAATTTCGTTCCGTTTTT
R. schomburgkii TTACGACTCTTTTTTCACGAGTATTGGAATTGGAACAGTCTTTTTATTTCAAAGAAATCTATTTCCGTTTTT
R. monsalveae  TTACGACTCTTTTTTCACGAGTATTGGAATTGGAACAGTCTTTTTATTTCAAAGAAATCTATTTCCGTTTTT
A. pubescens   TTACGACTCTTTTTTCATGAGTATTGGAATTGGAACAGTCTTTTTATTTCGAAGAAATTTCTTTCCGTTTTT
A. khasayama   TTACGACTCTTTTTTCATGAGTATTGGAATTGGAACAGTCTTTTTATTTCGAAGAAATTTCTTTCCGTTTTT
A. saxatilis   TTACGACTCTTTTTTCATGAGTATTGGAATTGGAACAGTCTTTTTATTTCGAAGAAATTTCTTTCCGTTTTT
L. comptonii   TTACGACTCTTTTTTCACGAGTATTGGAATTGGAATAGTCTTTTTTTTTCGAAGAAATTTCGTTCCGTTTTT
H. humiriifolia TTACGACTCTTTTTTCACGAGTATTGGAATTGGAACAGTCTTTTTATTTCAAAGAAATCTATTTCCCTTTTT
I. griffithiana TTACGACTCTTTTTTCATGAGTATTGGAATTGGAACAGTCTTTTTTTTTCAAAGAAATCTATTTCCGTTTTT
P. magnifolia  NNNNNNNNCTTTTTTCATGAGTATTGGAATTGGAACAGTCTTTTTTTTTCAAAGAAATCTATTTCCGTTTTT
T. sinensis    TTACGAATTTTTTTTCACGAGTATTGGAATTGGAATAGTCTTTTTAGTTCGAAGAAATTTCTTTCCGTTTTT
T. ovoidea     TTACGAATTTTTTTTCACGAGTATTGGAATTGGAACAGTCTTTTTAGTTCGAAGAAATTTCTTTCCGTTTTT
R. calophylla  ------------------------------------------------------------------------
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BalanopsPancheri TTACGACTCTTTCTTCACGAGTATTGGAATTGGAACAGTCTTGTTATTCCAAATAAATCTATTTCCATTTTT
BischofiaJavanic TTACGACTCTTTCTTCACGAGTATTGG------AACCGTTTTTTTATTCCAAAGAATTCTATTTCCACTTTT
BruguieraGymnorh TTCCGACTCGTTGTTCATGAGGAGTGGAATTGTAACAGTCTTATTATTCCAAAAAAATCTATTTCCATTTTT
ByrsonimaCrassif TTACGACTCTTTCTTCACGAGTATTGGAATTGGAATAGTTTTATTATTTCAACGAAATCGATTTCCATTTTT
MalpighiaGlabra  TTACGACTCTTTCTTCACGAGTATTGGAATTGGAATAGTTTTATTATTTCAACGAAATCCATTTCCATTTTT
CamptostylusMann TTACGACTCTTTCTTCACGAGTATTGGAATTGGAACAGTCTTATTATTCCAAAGAAATCCATTTCCATTTTT
ClusiaRosea      TTAAGACTCTTTCTTCATGAGTATTGGAGAT--------CCTTTTTTTCCAAAAAAG-GAAAAAGCTTTTTT
CratoxylumCochin TTACGACTCTTTCTTCACGAGTATTGGAATTTGAACAGTCCTTTTTTTCCAAAGAAATCTATTTGTTTTTTT
CtenolophonEngle TTACGACTTTTTCTTCACGAGTATTGGAATTGCAACAGTCTTATTATTCCAAAGAAATCCATTTCCATTTTT
DrypetesLittoral TTACGGCTCTTTCTTCACGAGTATTGGAATTGGAACAGCCTTATTATTCCAAAGAAATATATTTCCATTTTT
ElatineTriandra  TTACGACTTTTTCTTCACGAGTATTGGAATTGCAAGCGTCTTAGTATTCCAGCAAAATCTATTTCAATTTTT
ErythroxylumNovo TTACGACTCTGTGTTTATCCGGATTGGCATTGGAACAGTCTTATGATTCCAAAAAAATGGAAATCCATTTTT
EuonymusHamilton TTACGGCTCTTTCTCCATGAGTATTGGAATTGGAATAGTCTTCTTACTCCAAAGAAATCCATTTACATTTTT
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EuphorbiaHumifus TTACGACTCTTTCTTCATCAGTATTGGAGTTGGAACAGTCTTATTATTCCACAGAAATCAATTTCTATTTTT
EuphroniaGuianen TTACGACTTTTTCTTCACGAGTATTGTAATTGGAACAGTCTTGTTATTCCAAATAAATCTTTTTCTATTTTT
FlacourtiaIndica TTACGACTATTTCTTCACGAGTATTGGAATTGGAATAGTCTTATTATTCCAAAGAAATCTATTTCCATTTTT
FlueggeaVirosa   TTACGATTTTTTCTTCACGAGTATTGGAATTGGAACAGTCTTATTATTCCAAAAAATTTATTTCTTTTTTT
GarciniaSubellip TTAAGACTCTTTCTTCATGAGTATTGGAGTTGGAACAGTCCCCTTTTTCCAACAAAGGAAAAAGTTTTTTCC
GomphiaSerrata   TTACGACTCTTTCTTCACGAGTATTGGAATTGGAACAGTCTTCTTATTTCAAAGAAGTCCATTTCCGTTTTT
HumiriaBalsamife TTACGATTATTTCTTCACGAGTATTGGAATTGGAACAGTCTTATTATTTCAAAGAAATCTATTTCTATTTTT
IonidiumCommune  TTACGACTCTTTCTTCACGAGTATTGGAATTGGAACAGTCTTATTATTCCAAAGAAATCTATTTCCCCTTTT
IrvingiaMalayana TTACGACTCTTTCTTCACGAATATTGGAATTTGAGCAGTCTTATTATTCCAAAGAAATTTAGTTCCATTATT
IxonanthesReticu TTACGATTCCTTTTTCACGAGTATTGGAATTGTAACAGTCTTATTATTCCAAAGAAATCCATTTCTATTTCT
JatrophaIntegerr TTACGACTCTTTCTTCATGAATATTGGAATAGGAACAGTCTTATTATTCAAAAGGGATCTATTTCTATTTTT
KiggelariaAfrica TTACGACTCTTTCTTCACGAGTATTGGCATTGGAACAGTCTTATTATTCCAAAGAAATCCATTTCCCTTTTT
LacistemaAggrega TTACGACTCTTTCTTCACGAGTATTGGAATTTGAACAGTTTTATTATTCCAAAGAAATCTATTTCCATTTTT
LunaniaParviflor TTACGCCTCGTTCTTCACGAGTATTGGAATTGGAACAGTCTTATTATTCCAAAAAAATCTATTTCCATTTTT
ManihotEsculenta TTACGACTCTTTCTTCATGAGTATTGGAATTTGAACAGTCTTATTATTCCAAAGAAATTTATTACTATTTTT
OxalisCorniculat GTACGGCTCTTTCTCCACGAGTATTCTGAATGGAATAGGCTTATTATTCCAAAGAATTCTAGTTCCATTTTT
PassifloraQuadra TTACGACTCTTTCTTCACGAGTATGGGAATTGGGACCCGTTTATTATTTCAAAGAAATTGAGTTCGATTTTT
PhyllanthusFlexu TTACGATTTTTTCTTCACGAGTATTGGAATTGGAACAGTCTTATTTTTCCAAATAATTTATTACTTTTTTT
PimelodendronGri TTACGACTCTTTCTTCATGAGTCTTGGAATTGGAACAGTCTTATTATTCCAAAGAAATCTATTTCTAGTTTT
RicinusCommunis  TTACGACTCTTTCTTCATGAGTATTGGAATTGGAACAGTTTTATTATTCCAAAGAAATCAATTTCTATTTTT
SacoglottisSp    TTACGATTCTTTCTTCACGAGTATTGGAATTGGAACAGTCTTATTATTTCAAAGAAATCCATTTCTATTTTT
ScageaOligostemo TTACGACTCTTTCTTCACGAGTCTTGGAATTGGAGCAGTCTTTTTATTCCCAAGAGGGCTATTTCCATTTTT
TrigoniaBolivian TTAAGGCTTTTTCTTCACGAATATTGGAATTGGAACAGTCTTGTTATTCAAAATAAATCTCTTTACTTTTTT
AlbiziaTomenosaJ TTAAGGCTCTTTCTTTATGAGTATTGTAATTGGAATAGTCTTATTACTCCAAAAAAAGGGATTTCTACTTTT
KerriaJaponica   TTACGAGTCTTTCTTCACGAGTATTATAATTGGAATAGTCTTATTACC---AAAAAAATAAAATATATTTTT
DatiscaCannabina TTACGGTTCTTTCTTCACGAGTATTCTAATTGGAATAGTCTTATTACTCCAAAGAAATCGATTTCTTTTTTT
QuercusRubra     TTGCGGTTCTTTCTTCATGAGTATTCTAATTGTAACAGTCTTATTATTACAAATAAATCTATTTCCATTTTT
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Taxon/Node       456789012345678901234567890123456789012345678901234567890123456789012345
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L. perenne       GTAAAAAAGAATTTAAGACTTTTA-TGGTTTTATATAATATATATATATATGAAAATGAATCCATTTTATTT
L. pratense      GTAAAAAAGAATTTAAGACTTTTATTGGTTTTATATAATATATATATATATGAAAATGAATCCATTTTATTT
L. narbonense    GTAAAAAGGAATCCAAGACTTTTTTTGGTTTTATATAATATATATATATATGAAAATGAATCCATCTTATTT
C. selaginoides  GTAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATATATATATGAAAACGAATCCATCTTCTTT
L. hirsutum      GTAAAAAGGAATCCAAGACTCTTATTGTTTTTATATAATTTATATATATATGAAAATGAATCCATCTTCTTT
L. hypericifoliumGTAAAAAGGAATCCAAGACTCTTATTGTTTTTATATAATTTATATATATATGAAAATGAATCCATCTTCTTT
L. usitatissimum GTAAAAAGGAATCCAAGACTCTTATTGTTTTTATATAATTTATATATATATGAAAATGAATCCATCTTCTTT
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L. bienne        ATAAAAAGGAATACAAGACTTTTATTGGTTTTATATAATATATATATATATGAAAATGAATCCATCTTATTT
L. monogynum     GGAAAAAGAAATACAAGACTTTTATTGGTTTTATATAATATATATATATATGAAAATGAATCCATCTTATTT
L. suffruticosum GTAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATATATATATGAAAATGAATCCATCTTATTT
H. clevelandii   GTAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTCTATATATATGAAAACGAATCCATCTTCTTT
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L. berlandieri   GTAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATATATATATGAAAACGAATCCATCTTCTTT
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R. indica        GTAAAAAGGAACCCAAGATTCTTCTTGTTCTTATATAATTTATATGTATATGAAAACGAATCCATCTTCTTT
H. drymarioides  CTAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATATATATATGAAAACGAATCCATCTTCTTT
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H. castaneifolia GTAAAAAGGAATCCAAGATTCTTTTTGTTCTTATATAATTTATATGTATATGAATATGAATCCATCTTCTTT
S. digynum       GTAAAAAGGAACCCAAGATTCTTCTTGTTCTTATATAATTTATATATATATGAAAACGAATCCATCTTTTTT
L. oligophyllum  GTAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTCTATATATATGAAAACGAATCCATCTTCTTT
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H. mystax        GTAAAAAGGAATCCAAGATTCTTTTTGTTCTTATATAATTTATATGTATATGAATATGAATCCATCTTCTTT
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H. neocaledonic  GTAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATATGTATATGAATACGAATCCATCTTCTTT
H. penicillanth  GTAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATATGTATATGAATACGAATCCATCTTCTTT
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H. planchoni     GTAAAAAGGAATCCAAGATTCTTTTTGTTCTTATATAATTTATATGTATATGAATATGAATCCATCTTCTTT
H. orientalis    GTAAAAAGGAATCCAAGATTCTTTTTGTTCTTATATAATTTATATGTATATGAATATGAATCCATCTTCTTT
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H. longipes       GTAAAAAGGAATCCAAGATTCTTTTTGTTCTTATATAATTTATATGTATATGAATATGAATCCATCTTCTTT
L. volkensii      GTAAAAAGGAAGCCAAGATTCTTCTTGTTCTTATATAATTTATATATATATGAAAACGAATTCATCTTCTTT
L. flavum         GTAAAAAAGAATCCAAGATTCTTCTTGTTCTTATATAATTTATATATATATGAAAACGAATCCATCCTCTTT
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L. arboreum       GTAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATATATATATGAAAACGAATCCATCCTCTTT
R. linoides       GTAAAAAGGAATCCAAGATTGTTGTTGTTCTTATATAATTTATATATATATGAAAACGAATCCATCTTCTTT
R. schomburgkii   GTAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATATGTATATGAATACGAATCCATCTTCTTT
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A. pubescens      GTAAAAAGGAATCCAAGATTCTTCTTGTTGTTATACAATTTATATGTATATGAAAACGAATCCATCTTCTTT
A. khasayama      GTAAAAAGGAATCCAAGATTCTTCTTGTTGTTATACAATTTATATGTATATGAAAACGAATCCATCTTCTTT
A. saxatilis      GTAAAAAGGAATCCAAGATTCTTCTTGTTGTTATACAATTTATATGTATATGAAAACGAATCCATCTTCTTT
L. comptonii      GTAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATATATATATGAAAACGAATCCATCTTCTTT
H. humiriifolia   GTAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATATGTATATGAATACGAATCCATTTTCTTT
I. griffithiana   GTAAAAAGGAATCCAAGATTTTTCTTGTTCTTATATAATTTATATGTATATGAATACGAATCCATCTTCTTT
P. magnifolia     GTAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATATGTATATGAATACGAATCCATCTTCTTT
T. sinensis       GTAAAAAGGAATCCGAGATTCTTCTTGTTCTTATATAATTTATATGTATATGAGAACGAATCCATCTTCTTT
T. ovoidea        TTAAAAAGGAATCCGATATTCTTCTTGTTCTTATATAATTTATATGTATATGAGAACGAATCCATCTTCTTT
R. calophylla     ------------------------------------------------------------------------
AcalyphaInsulana ACAAAAAGTAATCCAAGATTTTTCTTGTTTCTATATAACTCTCATGTATATGAATATGAATCCATCTTCTTT
BalanopsPancheri ACAAAAAGTAATCCAAGATTATTTTTGTTCCTATATAATTCTCATGTATATGAATACGAATCTATTTTCTTT
BischofiaJavanic GTAAAAAGGAATCCAAGATTTTTCTTGTTTCTATATAATTCTCATGTATATGAATACGAATCCATATTCTTT
BruguieraGymnorh CCAAAAATTAATCCAAGATTCTTTTTCTTCCTATATAATATTCATGTATATGAATACGAATTCATCTTTTTT
ByrsonimaCrassif TTAAAAAGGAATCCAAGATTATTGTTGTTCCTATATAATTCTCATGTATATGAATACGAATCCATCTTCTTT
MalpighiaGlabra  TTAAAAAGGAATATAAGATTATTGTTGTTCCTATATAATTCTCATGTATATGAATACGAATCCATCTTCTTT
CamptostylusMann GTAAAAAAGAATCCAAGATTGTTCTTGTTCCTATATAATTCTCATGTATATGAATACGAATCTATATTCTTT
ClusiaRosea      GGAAAAAAACATTTAAGATTATTTCGGTTTTTATATAATTCCTATGTATATGAATACGAATCCATTTTATTT
CratoxylumCochin GCAAAAAGGAATCTAAGATTATTTGTGTTTTTATATAATTCTTATGTATATGAATACGAATCCATTTTATTT
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DrypetesLittoral GCAAAAAGTAATCCAAGATTATTTTTGTTCCTATATAATTATCATGTATATGAATACGAATCCATCTTCTTT
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EuonymusHamilton TCACAAAGTAATCCAAGATTTTTCTTCTTCCTATATAATTCTTATGTGTCGGAATACGAATCTATTTTCTTT
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EuphroniaGuianen ACAAAAAGTAATCCAAGATTCTTCTTGTTCCTATATAATTCCTATGTATATGAATATGAATCCATCCTCTTT
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FlueggeaVirosa   GCAAAAAGTAATCCACGATTATTCTTGTTTCTATATAATTCTCATGTATATGAATATGAATCCATCTTCTTT
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IrvingiaMalayana GCAAAAAGTAATCCAAGATTATTCTTGTTCTTATATAATTCTCATGTATATGACTACGAATCTATTTTTTTT
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OxalisCorniculat TCAAAGAGTAATCCAAGATTGTTCTTGTTCCTATATAATTCTTTAGTATACGAATACGAATCCACTCTTCTT
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AlbiziaTomenosaJ TCAAAAAGTAATCCAAGATTTTTCCTGTTCCTATATAATTTTTATGTATGTGAATACGAATCCATCTTTCTT
KerriaJaponica   TCAAAAAGTAATCCACGACTATTCTTGCTCCTATATAATTCTCATGTATGTGAATACGAATCCATCTTACTT
DatiscaCannabina TCAAAAAGAAATCGAAGATTATTCTTGTTCCTATATAATTCTCATGTATGTGAATACGAATCTATTTTCCTT
QuercusRubra     TCAAAAAGTAATCCGAGATTCTTTTTATTCCTATATAATTCTTATATATGTGAATACGAATCCATCTTCCTT


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L. lewisii       TTTCTTCGTAACCAAGTTTTTTATTTACGATCAACCTTTTCTAGCTTTCTTCTTGAGCGAAATTTTTTCTAT
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L. perenne        TTTCTTCGTAACCAAGTTTTTTATTTACGATCAACCTTTTCTAGCTTTCTTCTTGAGCGAAATTTTTTCTAT
L. pratense       TTTCTTCGTAACCAAGTTTTTTATTTACGATCAACCTTTTCTAGCTTTCTTCTTGAGCGAAATTTTTTCTAT
L. narbonense     TTTATTCGTAACCAAGTTTTTTATTTACGATCAACCTTTTCTAGCTTCTTTCTTGAGCGAAATTTGTTCTAT
C. selaginoides   TTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCAGTTTCTTCTTGAGCGAAAGTATTTCTAT
L. hirsutum       TTTCTTCGTAACCAATCTTTTTATTTACGATCAACCTTTTCTCGGTTCCTTCTTGAGCGAAATTTTTTCTAT
L. hypericifoliumTTTCTTCGTAACCAATCTTTTTATTTACGATCAACCTTTTCTAG----------------------------
L. usitatissimum  TTTCTTCGTAACCAATCTTTTTATTTACGATCAACCTTTTCTCGGTTCCTTCTTGAGCGAAATTTTTTCTAT
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L. bienne         TTTCTTCGTAACCAAGTTTTTTATTTACGATCAACCTTTTCTAGCTTCTTTCTTGAGCGAAATTTGTTCTAT
L. monogynum      TTTCTTCGTAACCAAGTTTTTTATTTACGATCAACCTTTTCTAGCTTCTTTCTTGAGCGAAATTTGTTCTAT
L. suffruticosum  TTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCAGTTTCTTCTTGAGCGAAAGTATTTCTAT
H. clevelandii    TTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCAGTTTCTTCTTGAGCGAAAGTATTTCTAT
H. disjunctum     TTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCAGTTTCTTCTTGAGCGAAAGTATTTCTAT
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D. pentagyna      TTTCTTCGTAACCAATCTTTTCATTTACGATCAACCTTTTTTCGGTTCCTTCTTGAGCGAAAGTATTTCTAT
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H. micranthum     TTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCAGTTTCTTCTTGAGCGAAAGTATTTCTAT
H. castaneifolia  TTTCTTCGTAACCAATCTTTTCATTTACGATCAACCTTTTCTCGGTTCCTTCTTGAGCGAAAGTATTTCTAT
S. digynum        TTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCAGTTTCTTCTTGAGCGAAAGTATTTCTAT
L. oligophyllum   TTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCAGTTTCTTCTTGAGCGAAAGTATTTCTAT
H. neblinae       TTTCTTCGTAACCAATCTTGTCATTTACGATCAACCTTTTCTCGGTTCCTTCTGGAGCGAAAGTATTTCTAT
H. mystax         TTTCTTCGTAACCAATCTTTTCATTTACGATCAACCTTTTCTCGGTTCCTTCTTGAGCGAAAGTATTTCTAT
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H. neocaledonic   TTTCTTCGTAACCAATCTTTTCATTTACGATCAACCTTTTTTCGGTTCCTTCTTGAGCGAAAGTATTTCTAT
H. penicillanth   TTTCTTCGTAACCAATCTTTTCATTTACGATCAACCTTTTTTCGGTTCCTTCTTGAGCGAAAGTATTTCTAT
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H. planchoni      TTTCTTCGTAACCAATCTTTTCATTTACGATCAACCTTTTCTCGGTTCCTTCTTGAGCGAAAGTATTTCTAT
H. orientalis     TTTCTTCGTAACCAATCTTTTCATTTACGATCAACCTTTTCTCGGTTCCTTCTTGAGCGAAAGTATTTCTAT
H. longipes       TTTCTTCGTAACCAATCTTTTCATTTACGATCAACCTTTTCTCGGTTCCTTCTTGAGCGAAAGTATTTCTAT
L. volkensii      TTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCAGTTTCTTCTTGAGCGAAAGTATTTCTAT
L. flavum         TTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCAGTTCCTTCTTGAACGAAAGTATTTCTAT
L. catharticum    TTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCAGTTTCTTCTTGAGCGAAAGTTTTTCTAT
L. arboreum       TTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCAGTTCCTTCTTGAACGAAAGTATTTCTAT
R. linoides       TTTCTTCGTAACCAATCTTTTCATTTACGATCAACTTTTTATCGGTTCCTTCTTGAGCGAAAGTATTTCTAT
R. schomburgkii   TTTATTCGTAACCAATCTTTTCATTTACGATCAACCTTTTCTCGGTTCCTTCTTGAGCGAAAGTATTTCTAT
R. monsalveae     TTTCTTCGTAACCAATCTTTTCATTTACGATCAACCTTTTCTCGGTTCCTTCTTGAGCGAAAGTATTTCTAT
A. pubescens      TTTCTTCGTAACCAATCTTTTCATTTACGATCAACCTTTTCTCGGTTCCTTCTTGAGCGAAAGTATTTCTAT
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H. humiriifolia   TTTGTTCGTAACCAATCTTTTCATTTACGATCAACCTTTTCTAGGTTCCTTCTTGAGCGAAAGTATTTCTAT
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P. magnifolia     TTTATTCGTAACCAATCTTTTCATTTACGATCAACCTTTTCTCGGTTCCTTCTTGAGCGAAAGTATTTCTAT
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T. ovoidea        TTTCTTCGTAACCAATCTTTTCATTTACGATCAACTTTTTCTCGATTCCTTCTTGAGCGAAAGTATTTCTAT
R. calophylla     ------------------------------------------------------------------------
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BalanopsPancheri  TTTCTCCGTAACCAATCCTTTCATTTACGATCAACATTTTTTCGGGTCTTTCTTGAGCGAATCTATTTCTAT
BischofiaJavanic  TTTCTTCGTAAGCAATCTTTTCATTTACGATCAACATTTTTTCGGATCCTTCTTGAGCGAATATATTTCTAT
BruguieraGymnorh  TTTCTCCGTAACCAATCCTCTTATTTACGATCAACATTTTCTTGGGTACTTCTTGAGCGAATAAATTTCTAC
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MalpighiaGlabra   TTTCTCCGTAACCAATCCTTTTATTTCCGATCAACATTTTCGCGGGTGCTTCTTGAACGAATATATTTCTAT
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ClusiaRosea       TTTTTTCGTATCCAATCCTTTCATTTACGATCAACATTTTTTCAGGTTCTTATTGAACGAATATATTTTTAT
CratoxylumCochin  TTTCTTCGTATCCAATTCTTTCATTTACGATCCAAACTTTTTCAGGTTCTTTTTGAGCGAATCTATTTCTAT
CtenolophonEngle  TTTCTCCGTAACCAATTCTTTTATTTACGATCAACATTTTCTCGAGTTCTTCTTGAGCGAATATATTTCTAT
DrypetesLittoral  TTTCTCCGTAACCAATTCTTTCATTTACGATCAACATTTTCTCGGGTCCTTCTTGAGCGAATATCTTTCTAC
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ErythroxylumNovo  TTTCTCCGTAACCAAGCCTTTTATTTACGATCAATATTTTCTCGGTTCCTTCTTGAGCGGATAGATTTCTAT
EuonymusHamilton  TTTCTACGTAACGAAGAATTTCATTTATGGTCAACATCCTCTCGGGTCCTTCTTGAGCGAATCCATTTCTAT
EuphorbiaHumifus  TTTCTCCGTAATCAGTGCTTTCATTTACGATCAACATTTTCTCGCGTCTTTCTTGAACGAATTTTTTTCTAT
EuphroniaGuianen  TTTCTCCGTAAGCAATCTTTTCATTTAATATCAACAGTTTTTCGGCCATTTCGTGAACGAATTTATTTCTAT
FlacourtiaIndica  TTTCTTCGTAATCAATCCTTTCATTTCCGATTAATATTTTCTCAGGTCTTTCTTGAGCGAATATATTTCTAT
FlueggeaVirosa    TTTCTCCGTAACCAATCCTTTCATTTACGATCAACATTTTTTCGGGTCCTTCTTGAGCGAATATATTTTTAT
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GarciniaSubellip TTTTTTCGTATCCAATCCTTTCATTTACGATCAACATTTTTTCAAGTCCTTATTGAACGAATATATTTTTAT
GomphiaSerrata   TTTCTCCGTAACAAATCTTTTCATTTACGATCAACATTTTCTTGGGTCCTTCTTGAACGAATAGATTTCTAT
HumiriaBalsamife TTTCTCCGTAACCAATCCTTTCATTTACGATCAACATTTTCTCGGGTCCCTCTTGAGCGAATATATTTCTAT
IonidiumCommune  TTTCTTCGTAGCCAATCTTTTCATTTACAATCAACATCTTTTCGAGTCCTTTTTGAGCGAATATATTTTTCT
IrvingiaMalayana TTTCTCCGTAACCAATCTTTTCATTTACAATCAACATTTTTTTGGATCCTTCTTGAGCGAATATATTTCTAT
IxonanthesReticu TTTCTCTGTAACCAATCCTTTCATTTATGCTCACTCTTTTTTGGGGCCCTTCTTGAGCGACTCTATTTCTAT
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LunaniaParviflor TTTCTTCGTAATCAATCCTTTCATTTCCGATTAACATTTTCTCAGGTTTTTCTTGAGCGAATATATTTCTAT
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PassifloraQuadra TTTCTTCGTAAGCAATCCTCTCATTTACGATCAACATTTTATCGGGTCTTTCTTGAGCGAATATTTTTCTAT
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SacoglottisSp    TTTCTCTGTAACCAATCCTTTCATTTACGATCAACATTTTCTCGGGTTCCTCTTGAGCGAATATATTTCTAT
ScageaOligostemo TTTCTCCGTAAGCAATCCTTTCACTTACGATCAACATTTTTTCGGGTCTTTCTTGAGCGAATCTATTTTTAT
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AlbiziaTomenosaJ TTTCTCCGTAACAAATCTTCTTATTTACGATTAACATCTTCTGGAGTCTTTTTTGAACGAATCTATTTCTAT
KerriaJaponica   TTTCTTCGTAATCAATCTTCTCATTTACGATTACCCTCTTCTGGGATCTTTTTTGAGCGAATAAATTTCTAT
DatiscaCannabina TTTCTACTTAAACAATCTTCTCATTTAGGATTAACATCTTATAGGGTCCTTTTTGAGCGAATCTATTTCTAT
QuercusRubra     TTTCTCCGTAACCAACCTTCTCATTTACGATTAACATCTTCTGGAGTCCTTTTTGAACGACTCTGTTTATAT


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L. lewisii       GAAAAAATGGAACAGTTTACGGAA---GTCTTTGATAATTGTTTTGGG---ATTGTCTTATGGTTATTTAAG
L. perenne       GAAAAAATGGAACAGTTTACGGAA---GTCTTTGATAATTGTTTTGGG---ATTGTCTTATGGTTATTTAAG
L. pratense      GAAAAAATGGAACAGTTTACGGAA---GTCTTTGATAATTGTTTTGGG---ATTGTCTTATGGTTATTTAAG
L. narbonense    GGAAAAATAGAACAGTTTGCGCAA---GTCTTTTCTAATTATTTTGGT---CTCCGCTTATGGTTATTTAAG
C. selaginoides  GGAAAAATAGAACAATTTGCGGAA---GTCTTTGCTAATTGTTTTCGG---ACCAGCCTATGGCTGTTTAAG
L. hirsutum      GGAAAAATAGAACAGTTTGCGGAA---GTCTTTGCTAATTGTTTTCGG---ACCAGCTTATGGTTATTTAAG
L. hypericifolium------------------------------------------------------------------------
L. usitatissimum GGAAAAATAGAACAGTTTGCGGAA---GTCTTTGCTAATTGTTTTCGG---ACCAGCTTATGGTTATTTAAG
L. nervosum      GGAAAAATAGAACAGTTTGCAGAA---GTCTTTGATAATTGTTTTGGG---ATTGGCTTATGGTTATTTAAG
L. bienne        GGAAAAATAGAACAGTTTGCGGAA---GTCTTTACTCATTTTTTGGGG---ATCCGCTTATGGATATTTAAG
L. monogynum     GGGAAAAGTGAACAGTTTGCAGAA---GTCTTTACTAATTTTTTGGGG---ATCCGCTTATGGTTATTTAAG
L. suffruticosum GGAAAAATAGAACAGTTTGCGGAA---GTCTTTGCTAATTGTTTTCGG---ACCAGCCTACGGTTGTTTAAG
H. clevelandii   GGAAAAATAGAACAATTTGCGGAA---GTCTTTGCTAATTGTTTTCGG---ACCAGCCTATGGCTGTTTAAG
H. disjunctum    GGAAAAATAGAACAATTTGCGGAA---GTCTTTGCTAATTGTTTTCGG---ACCAGCCTATGGCTGTTTAAG
L. berlandieri   GGAAAAATAGAACAATTTGCGGAA---GTCTTTGCTAATTGTTTTCCG---ACCAGCCTATGTCTGTTTAAG
L. rupestre      GGAAAAATAGAACAATTTGCGGAA---GTCTTTGCTAATTGTTTTCGG---ACCAGCCTATGGCTGTTTAAG
D. pentagyna     GGAAAAGTAGAACAGTTTGCAGAA---GTGTTTGCTAATTGTTTTCAG---GACAGCCTATGGTTGTTTAAG
R. indica        GGAAAAATAGAAGAGTTTGCGGAA---GTCTTTGCTAATTGTTTTCGG---ACCGGCCTATCGTTGTTTAAG
H. drymarioides  GGAAAAATGGAACAATTTGCGGAA---GTCTTTGCTAATTGTTTTCGG---ACCAGCCTATGGCTGTTTAAG
H. micranthum    GGAAAAATAGAACAATTTGCGGAA---GTCTTTGCTAATTGTTTTCGG---ACCAGCCTATGGCTGTTTAAG
H. castaneifolia GGAAAAATAGAACAGTTTGCAGAA---GTGTTTGCTAATTGTTTTCAG---GACAGCCTATGGGTGTTTAAG
S. digynum       GGAAAAATAGAACAATTTGCGGAA---GTCTTTGCTAATTGTTTTCAG---ACCAGCCTATGGCTGTTTAAG
L. oligophyllum  GGAAAAATAGAACAATTTGCGGAA---GTCTTTGCTAATTGTTTTCGG---ACCAGCCTATGGCTGTTTAAG
H. neblinae      GGAAAAATAGAACAGTTTGCAGAA---GTCTTTGCTAATTGTTTTCAG---GCCAGCCTATGGTTGTTTAAG
H. mystax        GGAAAAATAGAACAGTTTGCAGAA---GTGTTTGCTAATTGTTTTCAG---GACAGCCTATGGGTGTTTAAG
H. busseana      GGAAAAATAGAACAGTTTGCAGAA---GTGTTTGCTAATTGTTTTCAG---GACAGCCTATGGGTGTTTAAG
H. gabunensis    GGAAAAATAGAACAGTTTGCAGAA---GTGTTTGCTAATTGTTTTCAG---GACAGCCTATGGGTGTTTAAG
H. obtusifolia   GGAAAAATAGAACAGTTTGCAGAA---GTGTTTGCTAATTGTTTTCAG---GACAGCCTATGGATGTTTAAG
H. neocaledonic  GGAAAAATAGAACAGTTTGCAGAA---GTGTTTGCTAATTGTTTTCAG---GACAGCCTATGGTTGTTTAAG
H. penicillanth  GGAAAAATAGAACAGTTTGCAGAA---GTGTTTGCTAATTGTTTTCAG---GACAGCCTATGGTTGTTTAAG
H. spicata       GGAAAAATAGAACAGTTTGCAGAA---GTGTTTGCTAATTGTTTTCAG---GACAGCCTATGGATGTTTAAG
H. planchoni     GGAAAAATAGAACAGTTTGCAGAA---GTGTTTGCTAATTGTTTTCAG---GACAGCCTATGGGTGTTTAAG
H. orientalis    GGAAAAATAGAACAGTTTGCAGAA---GTGTTTGCTAATTGTTTTCAG---GACAGCCTATGGGTGTTTAAG
H. longipes      GGAAAAATAGAACAGTTTGCAGAA---GTGTTTGCTAAT------TGG---GACAGCCTATGGGTGTTTAAG
L. volkensii     GGAAAAATAGAACAGTTTGCGGAA---GTCTTTGCTAATTGTTTTTGG---ACCAGCCTACGGTTGTTTAAG
L. flavum        GGAAAAATAGAACAGTTTGCAGAA---GTGTTTGCTAATTGTTTTCGG---ACCAGCCTATGGTTGTTTAAG
L. catharticum   GGAAAAATAGAACAGTTTGCAGAA---GTCTTTGCTAATTGTTTTCGG---ACCAGCCTATGGTTGTTTAAT
L. arboreum      GGAAAAATAGAGCAGTTTGCGGAA---GTGTTTGCTAATTGTTTTCGG---ACCAGCCTATGGTTGTTTAAG
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R. linoides       GGAAAAATAGAACAGTTTGCGGAA---GTCTTTGCTAATTGTTTTCGG---ACCAGTCTATGGTTGTTTAAG
R. schomburgkii   GGAAAAATAGAACAGTTTGCAGAA---GTCTTTGCTAATTGTTTTCAG---GCCAGCCTATGGTTGTTTAAG
R. monsalveae     GGAAAAATAGAACAGTTTGCAGAA---GTCTTTGCTAATTGTTTTCAG---GCCAGCCTATGGTTGTTTAAG
A. pubescens      GAAAAAATAGAACAGTTTGCAGAA---GTCTTTGCTAATTGTTTTCGG---ACCAGCCTATGGCTGTTTAAG
A. khasayama      GAAAAAATAGAACAGTTTGCAGAA---GTCTTTGCTAATTGTTTTCGG---ACCAGCCTATGGCTGTTTAAG
A. saxatilis      GAAAAAATAGAACAGTTTGCAGAA---GTCTTTGCTAATTGTTTTCGG---ACCAGCCTATGGCTGTTTAAG
L. comptonii      GGAAAAATAGAACAATTTGCAGAA---GTCTTTGCTAATTGTTTTCGG---ACCAGCCTATGGCTGTTTAAG
H. humiriifolia   GGAAAAATAGAACAGTTTGCAGAA---GTCTTTGCTAATTGTTTTCAG---GCCAGCCTATGGTTGTTTAAG
I. griffithiana   GGAAAAATAGAACAGTTTGCAGAA---GTGTTTGCTAATTGTTTTCAG---GACAGCCTATGGTTGTTTAAG
P. magnifolia     GGAAAAATAGAACAGTTTGCAGAA---GTGTTTGCTAATTGTTTTCAG---GACAGCCTATGGTTGTTTAAG
T. sinensis       GGAAAAATAGAACAGTTTGTGGAA---GTCTTTGCTAATTGTTTTCGG---ACCAGCCTATGCTTGTTTAAG
T. ovoidea        GGAAAAATAGAACAGTTTGTGGAA---GTCTTTGCTAATTGTTTTCGG---ACCAGCCTATGCTTGTTTAAG
R. calophylla     ------------------------------------------------------------------------
AcalyphaInsulana GGAAAATTCGAACATTTTGCGGAA---GTCTTTGCTAATGATTTTCAG---GCCATCCTATGGTTGTTCAAG
BalanopsPancheri GGAAAAATAGAACATTTTGCAGAA---GTCTTTAATAATGATTTTCAG---GCCACCCTATGGTTGTTCAAG
BischofiaJavanic GGAAAAATAGAGCATTTTGCAGAA---GTCTTTGCTAATGATTTTCAG---GCCATCCTATGGTTGTTCAAG
BruguieraGymnorh GGAAAAGTAGAACAGTTTACAGAC---GTCTTTGCTAATGATTTTCAG---TCCGTCCTATGTTTGTTCAAG
ByrsonimaCrassif GGAAAAATACAAGATTTTGTAGAA---ATCTTTGCTAATGATTTTAAA---GTTAATCTATGGTTGTTCAAG
MalpighiaGlabra  GGAAAAATACAAGATTTTGTAGAA---CTTTTTACTAATGATTTTAAG---GCTAACCTACGGTTCTTCAAG
CamptostylusMann GGAAAAATAGAAAATTTTTCGGAA---GTCTTTGTTAATGATTTTCGG---GCCATCCTATGTTTGTTCAAG
ClusiaRosea      GTAAAAGTGGATAATTTTACCGAA---GTTTTTGCTAATGATTTTCAA---ACTACCCTACAGTTGTTCAAG
CratoxylumCochin GGAAAAGTAGAGAATTTTACAGAA---GTCTTTCCTAATGATTTTGAG---TTACTGCTCTGCTCGTTCAAG
CtenolophonEngle GGAAAAATAAAACATTTTAGAGAA---GTCTTTGCTAATGATTTTCAG---GTCATCCTACGGTTGTTCAAA
DrypetesLittoral GGAAAAATAGAACATTTTGCAGAA---GTCTTTGCTAATGATTTTCAG---GCCATCTTATGGTTGTTCAAG
ElatineTriandra  GGAAAAATCGAACATTTTGCGGAA---GTCTTTGCTAATGATTTTAAG---GCCATTCTCTCCTTCTTCAAG
ErythroxylumNovo GGAAAGATAGAACAGTTTATAGAA---GTCTTTGCTAATGATTTTCCG---GCTAACCTATGTTTGGTCAAA
EuonymusHamilton GGAAAAATAGAACATCTTGCAGAA---GTCTTTCGTAATTATTTTCAG---GTTATCCTTTGGTTGTTGAAG
EuphorbiaHumifus GGAAAAATAGAACATTTTGCAGAA---GGTTTTGCTAATGATTTTCAG---ACCCTCCTATGGTTGGTCAAG
EuphroniaGuianen GCAAAAATAGAATATGTTGCAGAA---GTCTTTACTAATGATTTTCAG---GATATCCTATGGTTGTTCAAG
FlacourtiaIndica GGAAAAATAGAACATTTTGTAGAA---GTCTTTACTAAGGATTTTCGG---GACAGCTTATGCTTGCTCAAG
FlueggeaVirosa   GGAAAAATAGAGCATTTTGCAGAA---GTCTTTGTTAATGATTTTCAG---GCCATTCTACGGTTGTTCAAA
GarciniaSubellip GTAAAAGTGGATCATTTAGCTGAA---GTCTTTGCTAATGATTTTCAA---GCTCCCCACAGGTTGTTCAAG
GomphiaSerrata   GGAAAAATAGAACATTTTGCAGAA---GTCTGTGTTAATGATTTTCAG---GCCATCCTAGACTTGTTCAAG
HumiriaBalsamife GGAAAAATAGAACATTTTGCAGAA---GTCTTTGCTAATGATTTTCAG---GCCATTCTATGGTTGTTCAAG
IonidiumCommune  AGAAAAATAGAACATTTTACTGAA---ATCCTTGCTAATGATTTTAGG---GCAATCCTATGCCCGGCCAAG
IrvingiaMalayana AGAAAAATAAAACATTCTGAAGAA---GCTTTTGTTAGGGATTTTCAG---ATTATCCTATGGTTGTCCAAG
IxonanthesReticu GGAAAAATAGAAAATTTTGCAGAA---GGATTTTCTAGTGATTTTTCA---GCCATCCTACGTTTGCTCAAA
JatrophaIntegerr GGAAAAATAGAACATTTTTCAGAA---GTCTTTGCTAATGATTTTCAG---ACTATCCTATGGTTGGTCAAG
KiggelariaAfrica GGAAAAATAGAACATTTTGCAGAA---GTCTTTGGTAATGATTTTCGG---GCCATCCTATGTTTGTTCAAG
LacistemaAggrega GGAAAAATAGAACATTTTGCAGAA---GTCTTTGCTAATGATTTTGGG---GGCATTCTATACTTCTTCAAG
LunaniaParviflor GGAAAAATAGAACATTTTGCCGAA---GTCTTTGCTAATGATTTTCGG---GACATCCTACGCTTGCTCAAG
ManihotEsculenta GGAAAAATAGAACATTTTGCGGAA---GTCTTTGCTAATGATTTTCAG---GCCATCTTGTGGTTGTTCAAG
OxalisCorniculat GGAAAAATAGAGCATCTTGCAAAA---GTGTTTGCGAATAATTTTAGG---GGTATTCTATGGTTATTGAAA
PassifloraQuadra GGAAAAATAGAATATTTTGCGGAA---GTCATTGCTAATGATTTTGGG---GCCACCCTATCCTTGTTCAAG
PhyllanthusFlexu GGAAAAATAGAACATTTTGCAGAA---GTCTTTGCTAATGATTTTCAG---GCTATTCTATGGTTGTTCAAA
PimelodendronGri GGAAAAGTAGAACATTTTGCAGAA---GTCTTTGCTAATGATTTTCAG---GCCATCCTATGGCTGTTCAAA
RicinusCommunis  GGAAAAATAGAACATTTTGCGGAA---GTCTTTGCTAATGATTTTCAG---GCCATCCTATGGTTGTTCAAG
SacoglottisSp    GGAAAAATAGAACATTTTGCAGAA---GTCTTTGCTAATGATTTTCAG---GCCATTCTATGGTTGTTCAAG
ScageaOligostemo GGAAAAATAGAGAATTTTGCAGAA---GTCTTTGCTAATGATTTTCAG---GCCATTCTACGGTTGTTCAAG
TrigoniaBolivian GGAAAAATAAAACATTTTGCAGAA---GTATTTACTAATGATTTTCAG---GCCACCCTTGGCTTGTTCAAG
AlbiziaTomenosaJ GCAAAAATAGAACATTTTGTAGAA----GCTTTGATAAGGATTTTCC----GCCACCCTATGGTTCTTCAAG
KerriaJaponica   GAAAAAATAAAATATCCTGTAGAACAAGTCCTTGCTAATGATTTTCCGGCCGCCGTCTTATGGTTCTTCAAG
DatiscaCannabina GGAAAAATAGAACATGTTGTAGAA---GTATTTGCTAATGATTTTCTG---GCTATCCTACGGGTCTTCAAG
QuercusRubra     AGAAAAATAGAACATTTTGCCGAA---GTCTTTTCTAATGATTTTCCG---GTCATCCCATGCTTTCTCAAG


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Taxon/Node        012345678901234567890123456789012345678901234567890123456789012345678901
--------------------------------------------------------------------------------------------------
L. lewisii        GATACT---------TTCATGCATTATGCTAGATATCAAGGAAAATTTTTTTAGCT------TCAAAGGGT
L. perenne        GATACT---------TTCATGCATTATGCTAGATATCAAGGAAAATTTTTTTAGCT------TCAAAGGGT
L. pratense       GATACT---------TTCATGCATTATGCTAGATATCAAGGAAAATTTTTTTAGCT------TCAAAGGGT
L. narbonense     GATACT---------TTCATCCATTATGCTAGATATCAAGGAAAAGCTATTTAGCT------TCAAAGGGT
C. selaginoides   GATCCG---------TTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCT------TCAAAGGGT
L. hirsutum       GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATATATTTAGCT------TCAAAGGGT
L. hypericifolium -----------------------------------------------------------------------
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L. usitatissimum GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATATATTTTAGCT------TCAAAGGGT
L. nervosum      GATACT---------TTCATGCATTATGCTAGATATCAAGGAAAATATATTTTAGCT------TCAAAGGGT
L. bienne        GATACT---------TTCATGCATTATGCTAGATATCAAGGAAATTTTTTTTAGCT------TCAAAGGGT
L. monogynum     GATACT---------TTCATGCATTATGCTAGATATCAAGGAAAATTTATTTTAGCT------TCAAAGGGT
L. suffruticosum GATCCG---------TTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCT------TCAAAGGGT
H. clevelandii   GATCCG---------TTCATGCATTATGCTAGATATCAAGGAAAATACATTTTAGCT------TCAAAAGGT
H. disjunctum    GATCCG---------TTCATGCATTATGCTAGATATCAAGGAAAATACATTTTAGCT------TCAAAGGGT
L. berlandieri   GATCCG---------TTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCT------TCAAAGGGT
L. rupestre      GATCCG---------TTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCT------TCAAAGGGT
D. pentagyna     GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATACGTTCTGGCT------TCAAAAGGT
R. indica        GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCT------TCAAAGGGT
H. drymarioides  GATCCG---------TTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCT------TCAAAGGGT
H. micranthum    GATCCG---------TTCATGCATTATGCTAGATATCAAGGAAAATACATTTTAGCT------TCAAAGGGT
H. castaneifolia GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATACGTTCTGGCT------TCAAAAGGT
S. digynum       GAGCCG---------TTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCT------TCAAAGGGT
L. oligophyllum  GATCCG---------TTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCT------TCAAAGGGT
H. neblinae      GATCCT---------TTCGTGCATTATGCTAGATATCAAGGAAAATACGTTCTGGCT------TCAAAGGGT
H. mystax        GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATACGTTCTGGCT------TCAAAAGGT
H. busseana      GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATACGTTCTGGCT------TCAAAAGGT
H. gabunensis    GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATACGTTCTGGCT------TCAAAAGGT
H. obtusifolia   GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATACGTTCTGGCT------TCAAAAGGT
H. neocaledonic  GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATACGTTCTGGCT------TCAAAAGGT
H. penicillanth  GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATACGTTCTGGCT------TCAAAAGGT
H. spicata       GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATACGTTCTGGCT------TCAAAAGGT
H. planchoni     GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATACGTTCTGGCT------TCAAAAGGT
H. orientalis    GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATACGTTCTGGCT------TCAAAAGGT
H. longipes      GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATACGTTCTGGCT------TCAAAAGGT
L. volkensii     GATCCG---------TTTATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCT------TCAAAGGGT
L. flavum        GATCCG---------TTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCT------TCAAAGGGT
L. catharticum   GATCCG---------TTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCT------TCAAAGGGT
L. arboreum      GATCCG---------TTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCT------TCAAAGGGT
R. linoides      GATCCT---------TTCATCCATTATGCTAGATATCAAGGAAAATACATTTTAGCT------GGAAAGGGT
R. schomburgkii  GATCCT---------TTCGTGCATTATGCTAGATATCAAGGAAAATACATTCTGGCT------TCAAAGGGT
R. monsalveae    GATCCT---------TTCGTGCATTATGCTAGATATCAAGGAAAATACATTCTGGCT------TCAAAGGGT
A. pubescens     GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCT------TCAAAGGGT
A. khasayama     GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCT------TCAAAGGGT
A. saxatilis     GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCT------TCAAAGGGT
L. comptonii     GATCCG---------TTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCT------TCAAAGGGT
H. humiriifolia  GATCCT---------TTCGTGCATTATGCTAGATATCAAGGAAAATACGTTCTGGCT------TCAAAGGGT
I. griffithiana  GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATACGTTCTGGCT------TCAAAAGGT
P. magnifolia    GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATACGTTCTGGCT------TCAAAAGGT
T. sinensis      GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCT------TCAAAGGGT
T. ovoidea       GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCT------TCAAAGGGT
R. calophylla    -----------------------------------------------------------------------
AcalyphaInsulana GATCCT---------AACATGCATTCTGTTAAATATCAAGGAAAATCCATTTTGGCT------TCAAAAGAT
BalanopsPancheri GATCCT---------TTCATGCATTATGTTAGATATCAAGGAAAAGCCATTCTGGCT------TCAAAGGAT
BischofiaJavanic GATCCT---------TTTATGCATTATGTTAGATATCAAGGAAAGTTCATTCTGGCT------TCAAAGGAC
BruguieraGymnorh GATCCT---------TTCATGCATTATGTTAGATATCAAGGAAAATTAATTTTGGTT------TCAAAGTAT
ByrsonimaCrassif GATCCT---------TTCATGCATTATGTTAGATATCAAGGAAAACACATTATGGCT------TCAAAAAGT
MalpighiaGlabra  GATCCT---------TTCATGCATTATGTTAGATATCAAGGAAAAGGCATTCTGGCT------TCAAAAAGT
CamptostylusMann GATCCT---------TTCATACATTATGTTAGATATCAAGGAAAGTCAATCCTGGCT------TCAAAGGAT
ClusiaRosea      GATCCT---------AACATGCATTATGTTAGATATCAAGGAAAATTCATTTTTGCT------TCAAAGGGT
CratoxylumCochin GATCCT---------CGCATGCATTATGTTAGATATCAAGAAAATTTCTTTTTGTCT------TCAAAGGGT
CtenolophonEngle GATCCT---------TTCATGCATTATGTTAGATATCAAGGAAAATGCATTTTGGCT------TCAAAAGAT
DrypetesLittoral GATCCT---------TTCATGCATTATGTTAGATATCAAGGAAAATCAATTCTGTCTTCAAATTCAAAGGGT
ElatineTriandra  GATCCT---------TTCATGCATTATGTTAGATATCAAGGAAAATCCATTATCGCT------TCAAAATGT
ErythroxylumNovo GATCCT---------TTCATGCATTATGTTAGATATCAAGGAAAATTCATTCTGGCT------TCAAAGGAT
EuonymusHamilton GATCCT---------TGCACACATTATGTTAGATATCAAGGAAAATTAATTCTGGCT------TCAAAAGAT
EuphorbiaHumifus GATCCT---------TTGATGCATTATGTTAGATATCAAGGAAAATCAATTCTGGCT------TTAAAAGAT
EuphroniaGuianen GATGCT---------TTCATGCATTATCTTAGATATCAAGGAAAATCAATTCTGGCT------TCAAGAGAT
FlacourtiaIndica GATCTT---------TTCATACATTATGTTAGATATCAAGGAAAATCCATTTTGGTC------TCAAAGGAT
FlueggeaVirosa   GATCCT---------TTCATTCATTATGTTAGATATCAAGGAAAGTCAATCTTGGCT------TCAAAGGAT
GarciniaSubellip GATCCT---------TTCATTCATTATGTTAGATATCAAGGAAAATCAATTTTGGCT------TCAAAAAAT
GomphiaSerrata   GATTCT---------TTCATACATTATGTTAGATATCAAGGAAAATCCATTCTGGCT------TCAAAGGAT
HumiriaBalsamife GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATCAATTCTGGCT------TCAAAGGAT
IonidiumCommune  GACTCT---------TTCATACATTATTTTAGATATCAAGGAAAATCAATTCTGGCT------TCGAAAGAT
IrvingiaMalayana GATCCT---------TTCATGCATTATGTTAGATATCAAGGAAAATCAATTCTGACT------TCAAAAGAG
IxonanthesReticu GATCCT---------TTCATAAATTATGTTAGATATCAAGGAAAAGCAATTCTGACT------TCAAAGGAT
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JatrophaIntegerr  GATCCT---------TTCATGCATTATGTTAGATATCAAGGAAAATCCATTCTGGCT------TCAAAAGAT
KiggelariaAfrica  GATCCT---------TTTATACATTATGTTAGATATCAAGGAAAATCAATCCTTGCG------TCAAAGGAT
LacistemaAggrega  GATTCTTTCATACATTTCATACATTATGTTAGATATCAAGGAAAAGCCATTCTGGCT------TCAAAGGAT
LunaniaParviflor  GATCCT---------TTCATACATTATGTTAGATATCAAGGAAAATCCATTCTGGTC------TCAAAGGAT
ManihotEsculenta  GATCCT---------TTCATGCATTATGTTAGATATCAAGGAAAATCAATTCTGGCT------TCAAAAGAT
OxalisCorniculat  GATCCT---------TTCATGCATTATGTTAGATATCAAGGAAAATCCATTTTTGCT------TCAAAAGAT
PassifloraQuadra  GATCCT---------TTCATACATTATGTTAGATATCAAGGAAAAGGCATTCTGGCT------TCAAAAGT-
PhyllanthusFlexu  GATCCT---------TTCATGCATTATGTTAGATATCAAGGAAAGTCAATCTTGGCT------TTAAAGGAT
PimelodendronGri  GATCCT---------TTCATGCATTATGTTAGATATCAAGGAAAATCAATTCTGGCT------TCAAAAGAT
RicinusCommunis   GACCCT---------TTCATGCATTATGTTAGATATCAAGGAAAATCTGTTTTGGCT------TCAAAAGAT
SacoglottisSp     GATCCT---------TTCATGCATTATGCTAGATATCAAGGAAAATCAATTCTGGCT------TCAAAGGAT
ScageaOligostemo  GATTCT---------TTCATGCATTATGTTAGATATCAAGGAAAGTCAATTTGGGCT------TCAAAGGAT
TrigoniaBolivian  GCTCCT---------TTTATGCATTATTTTAGATATCAAGGAAAATCCATTTTGGCT------TCAAGGGAT
AlbiziaTomenosaJ  GACCCT---------TTTATTCATTATGTTAGATATCAAGGAAAATCCATTCTAGCT------TCAAAGAAT
KerriaJaponica    GATCCT---------TTTATACATTATGTTAGATATCAAGGAAAATCAATTCTGGCT------TCAAAGGAT
DatiscaCannabina  GATCCT---------TTCATGCATTATGTTAGATATCAAGGAAAATCAATTCTGATT------TCAAAAGAT
QuercusRubra      GATCCT---------TTCATGCATTATGTTAGATATCAAGGAAAATCAATTCTGGCT------TCCAAAGAC


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Taxon/Node        234567890123456789012345678901234567890123456789012345678901234567890123
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L. lewisii        ---ACGCCC---CTTCGAATTAAAAAATGGAAATATTATCTTGTCAATTTATGGCAATGTCGTTTTTTTGTT
L. perenne        ---ACGCCC---CTTCGAATTAAAAAATGGAAATATTATCTTGTCAATTTATGGCAATGTCGTTTTTTTGTT
L. pratense       ---ACGCCC---CTTCGAATTAAAAAATGGAAATATTATCTTGTCAATTTATGGCAATGTCGTTTTTTTGTT
L. narbonense     ---ACGCCC---CTTACAATTAAAAAATGGAAATATTATCTTGTCAATTTATGGCAATGTCATTTTTATGTG
C. selaginoides   ---ACGCCC---CTTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTATGTG
L. hirsutum       ---ACGCCC---CTTCGAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTATGTG
L. hypericifolium-------------------------------------------------------------------------
L. usitatissimum  ---ACGCCC---CTTCGAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTATGTG
L. nervosum       ---ACGCCC---CTTCGAATTAAAAAATGGAAATATTATCTTGTCAATTTATGGCAATGTCATTTTTATGTG
L. bienne         ---ACGCTC---CTTTCAATTAAAAAATGGAAATATTATCTTGTCAATTTATGGCAATGTCATTTTTATGTG
L. monogynum      ---ACGCTC---CTTACAATTAAAAAATTGAAATATTATCTTGTCAATTTACGGCAATGTCATTTTTATGTG
L. suffruticosum  ---ACGCCC---CTTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTATGTG
H. clevelandii    ---ACGCCC---CTTCTAATAAAAAAATGGAAATATTACCTTGTCAATTTCTGGCAATGTCATTTTTATGTG
H. disjunctum     ---ACGCCC---CTTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTCTGGCAATGTCATTTTTATGTG
L. berlandieri    ---ACGCCC---CTTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTATGTG
L. rupestre       ---ACGCCC---CTTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTATGTG
D. pentagyna      ---ACGCCC---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
R. indica         ---ACGCTC---CTTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTATGTG
H. drymarioides   ---ACGCCC---CTTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTCTGGCAATGTCATTTTTATGTG
H. micranthum     ---ACGCCC---CTTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTCTGGCAATGTCATTTTTATGTG
H. castaneifolia  ---ACGCCC---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
S. digynum        ---ACGCCC---CTTCTAATTCAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTATGTG
L. oligophyllum   ---ACGCCC---CTTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTATGTG
H. neblinae       ---ACGCCC---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
H. mystax         ---ACGCCC---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
H. busseana       ---ACGCCC---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
H. gabunensis     ---ACGCCC---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
H. obtusifolia    ---ACGCCC---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
H. neocaledonic   ---ACGCCC---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
H. penicillanth   ---ACGCCC---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
H. spicata        ---ACGCCC---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
H. planchoni      ---ACGCCC---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
H. orientalis     ---ACGCCC---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
H. longipes       ---ACGCCC---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
L. volkensii      ---ACGCCC---CTTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTATGTG
L. flavum         ---ACGCCC---CTTCTAATTAAAAAATGGAAATATTACCTTGTAAATTTATGGCAATCTCATTTTTATGTG
L. catharticum    ACGACGGCC---CTTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTATGTG
L. arboreum       ---ACGCCC---CTTCTAATTAAAAAATGGAAATATTACCTTGTAAATTTATGGCAATCTCATTTTTATGTG
R. linoides       ---ACGCCC---CTTCTAATTCAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTATGTG
R. schomburgkii   ---ACGCCC---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
R. monsalveae     ---ACGCCC---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
A. pubescens      ---ACGCCC---CTTCTAATTAAAAAGTGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTATGTG
A. khasayama      ---ACGCCC---CTTCTAATTAAAAAGTGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTATGTG
A. saxatilis      ---ACGCCC---CTTCTAATTAAAAAGTGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTATGTG
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L. comptonii      ---ACGCCC---CTTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTATGTG
H. humiriifolia   ---ACGCCC---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
I. griffithiana   ---ACGCCC---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
P. magnifolia     ---ACGCCC---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
T. sinensis       ---ACGCGC---CTTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTATGTG
T. ovoidea        ---ACGCGC---CTTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTATGTG
R. calophylla     ------------------------------------------------------------------------
AcalyphaInsulana ---AGGTCT---CTTCGGATGAAAAAATGGAAATATTACTTTGTCAATTTATGTCAATGTCATTTTTATGTG
BalanopsPancheri ---ACGCCC---CTTTTGATGACAAAATGGAAATATTATCTTGTCGATTTATGTCAATGTCATTTTTATGTG
BischofiaJavanic ---ACACCT---CTTCTGATTAAAAAATGGAAAAATTTCTTTGTTAATTTATGTCAATGTCAATTTTATGTG
BruguieraGymnorh ---ACGCCT---CTTCTCATGAAAAAATGGAAATATTACGTTGTCAATTTATGTCAATGTCATTTTTATGTG
ByrsonimaCrassif ---ACGCCT---CTTCTGATGAAAAAATGGAAAGATTTCTTTGTCAATTTATGTCAATTTCATTTTTATGTG
MalpighiaGlabra  ---ACACTT---CTTCTGATGAAAAAATGGAAATATTTCTTTGTCAATTTATGTCAATTTCATTTTTATGTG
CamptostylusMann ---ACATCT---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTGATGTG
ClusiaRosea      ---ACGCCT---CTTCTGATAAAAAAATGGAAATATTACTTTATTAATTTATGTCAATGTCATTTTTATGTG
CratoxylumCochin ---ACGCCT---CTTATAATGAAAAAGTGGAAATACTACCTTGTTAATTTATTTCAATGTCATTTTTATGTG
CtenolophonEngle ---AGGTCT---CTTCCGCTGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTGTATTTG
DrypetesLittoral ---ACGCCT---CCTCTGATGAAAAAATGGAAATATTACCTTGTCAACTTATGTCAATGTTATTTTTATGTG
ElatineTriandra  ---ATGCCT---CTTCTGATGAAAAAATGGAAATATTACTTTGTCAATTTATATCAATGTCATTTTTATGTG
ErythroxylumNovo ---ACGCTT---CTTCTGATAAAAAAATGGAAATATTATTTTGTCCATTTATGTCAATATCATTTTTATGTG
EuonymusHamilton ---ATGCCA---TTTCTGATGACTAAATGGAAATTTTACCTTGTTAATTTATGTCAATGTCATTTTTTTGCG
EuphorbiaHumifus ---AAGCCC---TTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
EuphroniaGuianen ---ACGCCC---TTTTTGATGACAAAATGGAAATATTATCTTATCAATTTATGTCAATGTCATTTTTCTGTG
FlacourtiaIndica ---ACGCCT---CTTCTGATGAAAAAATGGAAAGATTACCTTGTCAATTTATGTCAATGTCATTTTGATGTG
FlueggeaVirosa   ---ACCCCT---CTTCTAATAAAAAAATGGAAAAGTTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
GarciniaSubellip ---AGGCCT---TTTCTGATGAAAAAATGGAAATATTACCTTGTCAACTTATGTCAATATCATTTTTATGTG
GomphiaSerrata   ---AGGCCT---CTTCCGATGAAAAAATTGAAATATTATTTTATCAATTTATGCCAATGTTATTTTTATGTG
HumiriaBalsamife ---ACTCCT---CTTCTGATGAAAAAATGGAAATATTACCTTGTTAATTTATGTCAATGTCAGTTTTATGTG
IonidiumCommune  ---AGGGGC---CTTCCAATGGGCAAGTGGAAATATTATCTTGTCAATGTATGTCAATGTCATTTTGATGTG
IrvingiaMalayana ---ACACCT---CTTCTGATGAAAAAATGGAAATATTATCTTGTCAATTTATGTCAATGTCATTTTTATGTA
IxonanthesReticu ---ACACCT---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATATCATTTTTATGTG
JatrophaIntegerr ---GGGCCT---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
KiggelariaAfrica ---ACCCCT---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTGCTGTG
LacistemaAggrega ---ACGCCC---CTTCCAATGAAAAAATGGAAATATTACCTTTTCAATTTATGTCAATGTCATTTTGATGTG
LunaniaParviflor ---ACGCCT---TTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATCTCATTTTGATGTG
ManihotEsculenta ---CGGCCT---TTTCTGATGAAAAAATGGAAATATTACCTTGTCAACTTATGTCAATGTCATTTTTATGTC
OxalisCorniculat ---ACGCGT---CTTCTGATAAATAAATGGAAATATTATCTTGTTAATTTATGTCAATGTCATTATTATGCG
PassifloraQuadra ---ACACTTC--TTCCTGATGAAAAAATGGAAATATTTCTTTGTCAATTTATGTCAATTTCATTTTTATGTG
PhyllanthusFlexu ---ACCCCT---CTTCTAATAAAAAAATGGAAAGGTTACCTTGTCAATTTATGTCAATGTCATTTTTCTGTG
PimelodendronGri ---AGGCCT---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
RicinusCommunis  ---GGGCCT---CTTCTGATGAAAAAATGGAAATATTACCTTGTCCATTTATGTCAATGTCATTTTTATGTG
SacoglottisSp    ---ACTCCT---CTTCTGATGAAAAAATGGAAATATTACCTTGTCAATTTATGTCAATGTCAGTTTTATGTG
ScageaOligostemo ---ACGCCT---CTTCTGATGAAAAAATGGAAAAATTACCTTGTCAATTTATGTCAATGTCATTTTTATGTG
TrigoniaBolivian ---ACCCCTATTCTCATGATCACAAAATGGAAATATTACCTTATCAATTTATGTCAATGTCAATTTGCTGTG
AlbiziaTomenosaJ ---ACGCCC---TTTTTGATGAAAAAATGGAAATACTATCTTATCCATTTATGGCAATGTCATTTTTTTGTT
KerriaJaponica   ---ATCCCT---CTTCTGATGAATAAGTGGAAATATTATCTTGTCAATTTATGGCAATGTCATTCTTATGTG
DatiscaCannabina ---ACGCCT---CTTCTGATGAATAAGTGGAAATATTACCTTGTCAATTTATGTCAATGTCATTTTTCTGTG
QuercusRubra     ---ACACCT---CTTCTAATGAATAAATGGAAATCTTACCTTGTCAATTTATGGCAATGTCATTTTGATGTA


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Taxon/Node        456789012345678901234567890123456789012345678901234567890123456789012345
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L. lewisii        TGGTCTCAACCGGAAAACATCTATTTAAATTCA------TTATCCAAGCATTCTGTCCACTTTTTAGGCTAT
L. perenne        TGGTCTCAACCGGAAAACATCTATTTAAATTCA------TTATCCAAGCATTCTGTCCACTTTTTAGGCTAT
L. pratense       TGGTCTCAACCGGAAAACATCTATTTAAATTCA------TTATCCAAGCATTCTGTCCACTTTTTAGGCTAT
L. narbonense     TGGTCTCAACCAGAAAACATCTATTTAAACTTA------TTATCCAAACAGTCTATTCACCTTTTAGGCTAT
C. selaginoides   TGGTCTCAACCAAAAAACATCTATTTAAACTCA------TTATCCAAACATTCTATCCACTTTTTAGGCTAT
L. hirsutum       TGGTCTCAACCAGAAAACATCTATTTAAACTCA------TTATCCAAACATTCTATCCACTTTTTAGGCTAT
L. hypericifolium------------------------------------------------------------------------
L. usitatissimum TGGTCTCAACCAGAAAACATCTATTTAAACTCA------TTATCCAAACATTCTATCCACTTTTTAGGCTAT
L. nervosum       TGGTCTCAACCGGAAAACATCTATTTAAATTCA------TTATCTAAACATTCTATCCACTTTTTAGGCTAT
L. bienne         TGGTCTCAACCAGAAAACATCTATTTAAACATA------TTATCCAAACATTCTATCCACCTTTTAGGATAT
L. monogynum      TGGTCTCAACCAGAAAACATCTATTTAAACGTA------TTATCCAAACATTCTATCCACCTTTTAGGCTAT
L. suffruticosum TGGTCTCAACCAGAAAACATCTATTTAAACTCA------TTATCCAAACATTCTATCCACTTTTTAGGCTAT
H. clevelandii    TGGTCTCAACCAGAAAACATCTATTTAAACTCA------TTATCCAAACATTCTATCCACTTTTTAGGCTAT
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H. disjunctum     TGGTCTCAACCAGAAAACATCTATTTAAACTCA------TTATCCAAACATTCTATCCACTTTTTAGGCTAT
L. berlandieri    TGGTCTCAACCAGAAAACATCTATTTAAACTCA------TTATCCAAACATTCTATCAACTTTTTAGGCTAT
L. rupestre       TGGTCTCAACCAGAAAACATCTATTTAAACTCA------TTATCCAAACATTCTATCCACTTTTTAGGCTAT
D. pentagyna      TGGTTTCAGCCAGAAAACATCTATCTAAACTCA------TTATCCAAGCATTCTATCGATTTTTTGGGCTAT
R. indica         TGGTCTCAACCAGAAAACATCTATTTAAACTCA------TTATCCAAACATTCTATCCACTTTTTAGGCTAT
H. drymarioides   TGGTCTCAACCAGAAAACATCTATTTAAACTCA------TTATCCAAATATTCTATCCACTTTTTAGGCTAT
H. micranthum     TGGTCTCAACCAGAAAACATCTATTTAAACTCA------TTATCCAAACATTCTATCCACTTTTTAGGCTAT
H. castaneifolia  TGGTTTCAGCCAGAAAACATCTATCTAAACTCA------TTATCCAAGCATTCTATCGACTTTTTGGGCTAT
S. digynum        TGGTCTCAACCAGAAAACATCTATTTAAACTCA------TTATCCAAACATTCTATCCACTTTTTAGGCTAT
L. oligophyllum   TGGTCTCAACCAAAAAACATCTATTTAAACTCA------TTATACAAACATTCTATCCACTTTTTAGGCTAT
H. neblinae       TGGTTTCAACCAGAAAACATCTATCTAAACTCA------TTATCCAAGCATTCTATCGACTTTTTGGGCTAT
H. mystax         TGGTTTCAACCAGAAAACATCTATCTAAACTCA------TTATCCAAGCATTCTATCGACTTTTTGGGCTAT
H. busseana       TGGTTTCAGCCAGAAAACATCTATCTAAACTCA------TTATCCAAGCATTCTATCGACTTTTTGGGCTAT
H. gabunensis     TGGTTTCAGCCAGAAAACATCTATCTAAACTCA------TTATCCAAGCATTCTATCGACTTTTTGGGCTAT
H. obtusifolia    TGGTTTCAGCCAGAAAACATCTATCTAAATTCA------TTATCCAAGCATTCTATCGACTTTTTGGGCTAT
H. neocaledonic   TGGTTTCAACCAGAAAACATCTATCTAAACTCA------TTATCCAAGCATTCTATCGATTTTTTGGGCTAT
H. penicillanth   TGGTTTCAACCAGAAAACATCTATCTAAACTCA------TTATCCAAGCATTCTATCGATTTTTTGGGCTAT
H. spicata        TGGTTTCAGCCAGAAAACATCTATCTAAATTCA------TTATCCAAGCATTCTATCGACTTTTTGGGCTAT
H. planchoni      TGGTTTCAGCCAGAAAACATCTATCTAAACTCA------TTATCCAAGCATTCTATCGACTTTTTGGGCTAT
H. orientalis     TGGTTTCAGCCAGAAAACATCTATCTAAACTCA------TTATCCAAGCATTCTAGCGACTTTTTGGGCTAT
H. longipes       TGGTTTCAACCAGAAAATATCTATCTAAACTCA------TTATCCAAGCATTCTATCGACTTTTTGGGCTAT
L. volkensii      TGGTCTCAACCAGAAAACATCTATTTAAACTCA------TTATCCAAACAGTCTATTCACTTTTTAGGCTAT
L. flavum         TGGTCTCAACCAGAAAACATCTATTTAAACTCA------TTATCCAAACATTCTATCCACTTTTTAGGCTAT
L. catharticum    TGGTCTCAACCAGAAAACATCTATTTAAACTCA------TTATCCAACCATTCTATCCACTTTTTAGGCTAT
L. arboreum       TGGTCTCAACCAGAAAACATCTATTTAAACTCA------TTATCCAAACATTCTATCCACTTTTTAGGCTAT
R. linoides       TGGTCGCAACCAGAAAACATTTATTTAAACTCA------TTATCCAAACATTCTATCCAGTTTTTAGGTTAT
R. schomburgkii   TGGTTTCAACCAGAAAACATCTATCTAAACTCA------TTATCCAAGCATTCTATCGACTTTTTGGGCTAT
R. monsalveae     TGGTTTCAACCAGAAAACATCTATCTAAACTCA------TTATCCAAGCATTCTATCAACTTTTTGGGCTAT
A. pubescens      TGGTCTCAACCAGAAAACATCTATTTAAACTCA------TTATCCAAACATTCTATCCACTTTTTAGGCTAT
A. khasayama      TGGTCTCAACCAGAAAACATCTATTTAAACTCA------TTATCCAAACATTCTATCCACTTTTTAGGCTAT
A. saxatilis      TGGTCTCAACCAGAAAACATCTATTTAAACTCA------TTATCCAAACATTCTATCCACTTTTTAGGCTAT
L. comptonii      TGGTCTCAACCAGAAAACATCTATTTAAACTCA------TTATCCAAACATTCTATCCGCTTTTTAGGCTAT
H. humiriifolia   TGGTTTCAACCAGAAAACATCTATCTAAACTCA------TTATCCAAGCATTCTATCGACTTTTTGGGCTAT
I. griffithiana   TGGTTTCAACCAGAAAACATCTATCTAAACTCA------TTATCCAAGCATTCTATCGACTTTTTGGGCTAT
P. magnifolia     TGGTTTCAACCAGAAAACATCTATCTAAACTCA------TTATCCAAGCATTCTATCAACTTTTTGGGCTAT
T. sinensis       TGGTCTCAACCAGAAAACATCTATTTAAACTCA------TTATCCAAACAGGATATCCACTTTTTAGGCTAT
T. ovoidea        TGGTCTCAACCAGAAAACATCTATTTAAACTCA------TTATCCAAACAGGATATCCACTTTTTAGGCTAT
R. calophylla     ------------------------------------------------------------------------
AcalyphaInsulana TGGTTTCAACCAGAAAAGATCTCTATCAATTCA------TTATCTAAGCATTCTCTCAACTTTTTTGGCTAC
BalanopsPancheri TGGTTTCAACCAGAAAGGATCAACATAAGCCCA------TTATACAAGCGCTCTCTCGACTTTCTTGTGCTA
BischofiaJavanic TGGTTTCAACCAGAAAGGATCTATATAAACCCA------TTAGCCAAGCATTCTCTCGACTTTTTGGGTTAT
BruguieraGymnorh TGGTTTCAACCGGAAAAGATCTATATAAACCTC------TTATCCAAGCACTCTCTAGACTTTTTGGGTTAT
ByrsonimaCrassif TGGTTTCATCCAGAACCAATCTATATAAAGTCA------TTATCCAAGCATTCTCTTGACTTTTTAGGTTAT
MalpighiaGlabra  TGGTTTCATCCAGAATCGATCTATATGAAGTCA------TTATCCAACCATTCTCTTGACTTTTTGGGTTAT
CamptostylusMann TGGTTTCAACCAGAAAAGATTTATATAAACCCA------TTATCTAAGCATTCTCTCGGCTTTTTGGGTTCT
ClusiaRosea      TGGTCTCAACCCGACCAGATCTATATAAACCCA------TTATCTAAGCATTTCTTGACTTTGTGGCTTAT
CratoxylumCochin TGGTTTCAACCAGAAAAGATCTATATAAATATA------TTAGAGAAGCCATCTATCGACTTTATGGGTTAT
CtenolophonEngle TGGTTTCAACCAGAAAGGATCTATATAAATCCA------TTATCCAAGCATTTCTCTACCTTTTGGGCTAT
DrypetesLittoral TGGCTTCAACCAGAAAAGATCCATATAAACCCA------TTATCCAAGCATTCTCTCGGCCTTTTGGGCTAT
ElatineTriandra  TGGTTTCATCCAGAAAAAATATATATCAAGTCA------TTAGCCAAGCAGTCTCTCGACTTTTTGGGCTAT
ErythroxylumNovo TGGTTTCAGCCGGAAAAGATCGATATAAACTCA------TTATCCAAACACTCTCTAGACTTTTTGGGCTAT
EuonymusHamilton GGGTCTCAACCGGAAAGGAGCTATATAAACCAA------TTATCCAAGCATTCTCTCGACTTTTTAGGCTAT
EuphorbiaHumifus TGGTTTCAACCAGAAAAGATCTATATCAATTCA------TTATCCAAACATTTCTCCAGTTTTTGGGCTAT
EuphroniaGuianen TGGTTTCAACCAGAAAAGATCTATATAATCCCA------TTATACAAGCGTTCTCTCAACTTTTTGGGCTAT
FlacourtiaIndica TGCTTTCAACCAAAAAAGATCCATAAAAACCCATTATCATTATACAAGCATTCTTTCGCCTTATTAGGCTAT
FlueggeaVirosa   TGGTTTCAACCAGCAAAGATCTGTATAAACCCA------TTATCGAAGCAGTCTCTCGAACTTTTGGGCTAT
GarciniaSubellip TGGTTTCAACCAGAAAAGATCTATATAAATTCA------TTATCCAAGCATTCTCTCAACTTTTTGGGCTAT
GomphiaSerrata   TGGTTTCAGCCAGAAAAGATCTATATAAATCTA------TTATCCAAGCAGTCTATCGACTTTTTGGGTTAT
HumiriaBalsamife TGGTTTCAACCGGAAAAGATCTATATAAACCCA------TTATCCAAACATTCTCTCGACTTTTTGGGCTAT
IonidiumCommune  GGGTTTTGCCCGGAAAAAATCTATATAAATTCA------TTATCCAAGCATTCTCTTGCCTTTTTGGGTTAT
IrvingiaMalayana TGGTTTCAACCAGAAAAGATCTATATAAACTCA------TTATCCAAGCATTCTCTCGACTTTTTGGGTTAT
IxonanthesReticu TGGTTTCAAACAGAAAAGATCTATATAATTCCA------TTATCCAAACATTCTCTCGACGTATTGGGTTAT
JatrophaIntegerr TGGTTTCAACCAGAAAAGATCTATATAAATTCA------TTATCCAAGCATTCTCTCAACCTTTTGGGCTAT
KiggelariaAfrica TGGTTTCAACCAGAAAAAATCTCTAAAAACCAA------TTGTCTAAGCATTCTCTCGACTTTTTGGGTTAT
LacistemaAggrega CGGTTTCAATCAAAAAAGATCCATATAAACCCA------TTATCCAAACATTCTCTCGACTTATTAGGCTAT
LunaniaParviflor TGCTTTCAACCAAAAAAGATCCATATAAACCCA------TTATCCAAGCATTCTTTCGCCTTATTAGGTTAT
ManihotEsculenta TGGTTTCAACCAGAAAAGATCTATATAAATTCA------TTATCCAAGCATTCTCTCAACTTTTTGGGCTAT
OxalisCorniculat TGGTCTCAACCGGAAAGGGTCTATATAAACCAA------TTATTCAAGCATTCTCTCGACTTTTTGGGATAT
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PassifloraQuadra TGGTTTCATCCAGAATCGATCTATATGAAGTCA------TTATCCAACCATTCTCTTGACTTTTTGGGTTAT
PhyllanthusFlexu TGGTTTCAACCAGCAAAGATCTCTATAAACCCA------TTATCGAAGCAGTCTCTCGACTTTTTGGGCTAT
PimelodendronGri TGGTTTCAACCAGAAAAGATCTATATAAATTCA------TTATCCAAGCATTCTTTCAACTTTTTGGGCTAT
RicinusCommunis  TGGTTTCAACCGGAAAAGATCTATATAAATTCA------TTATCTAAGCATTCTCTCAACTTTTTGGGCTAT
SacoglottisSp    TGGTTTCAACCGGAAAAGATCCATATAAACCCA------TTATCCAAGCATTCTCTCGACTTTTTGGGCTAT
ScageaOligostemo TGGTTTCAACCAGAAAAGATCTATATAAATCCA------TTGTCCAAGCATTCTCTCGACCTTTTTGGTTAT
TrigoniaBolivian TGGTTTCAACCAGAAAAAATCTCTAAAAACCAA------TTGTCTAAGCATTCTCTCGACTTTTTGGGTTAT
AlbiziaTomenosaJ TGGTCTCAACCAGGAAAGATCCATATAAACCAA------TTATCCGAGCATTCGTTTACTTTTTGGGCTAT
KerriaJaponica   TGGTCTCAACCAGGAAGGATTTATATAAACCAA------TTATCCAAGCATTCCCTTTATTTTTTGGGGTAT
DatiscaCannabina TGGTCACAACCAGAAAGGATCCAGATAAATCCA------TTATCCAAACGTTCTCTTGACTTTTTGGGCTAT
QuercusRubra     TGGTCTCACGCGGCAAGTATCCGTATAAACCAA------TTATCCAAGCATTCCCTCGATTTTTTGAGTTAC


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Taxon/Node       678901234567890123456789012345678901234567890123456789012345678901234567
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L. lewisii       ---CTTTCAAGT------CTAGGATTAAATCCTTCGGTCTTCCGAAGTCAAATGATAGAAAATTCTTTTCTA
L. perenne       ---CTTTCAAGT------CTAGGATTAAATCCTTCGGTCTTCCGAAGTCAAATGGTAGAAAATTCTTTTCTA
L. pratense      ---CTTTCAAGT------CTAGGATTAAATCCTTCGGTCTTCCGAAGTCAAATGGTAGAAAATTCTTTTCTA
L. narbonense    ---CTTTCAAGT------CTAGGATTAAATCTTTCGGTCTTGCGAAGTCAAATGGTAGAAAATTCTTTTCTA
C. selaginoides  ---CTTTCAAGT------GTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATA
L. hirsutum      ---CTTTCAGGT------CTACGATTAAATCCTTCGGTCTTCCGAAGTCAAATGGTAGAAAATTCTTTTCTA
L. hypericifolium------------------------------------------------------------------------
L. usitatissimum ---CTTTCAGGT------CTACGATTAAATCCTTCGGTCTTCCGAAGTCAAATGGTAGAAAATTCTTTTCTA
L. nervosum      ---CTTTCAAGT------CTAGGATTAAATCCTTCGGTCTTCCGAAGTCAAATGGTAGAAAATTCTTATCTA
L. bienne        ---CTTTCAAGT------CTAGAATTCAATCCTTCGGTTTTGCGAAGTCAAATGGTAGAAAATTCTTTTCTA
L. monogynum     ---CTTTCAAGT------CTAGGATTAAATCCTTCGGTCTTGCGAAGTCAAATGGTAGAAAATTCTTTTCTA
L. suffruticosum ---CTTTCAAGT------CTACGACTAAACCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATA
H. clevelandii   ---CTTTCAAGT------GTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATA
H. disjunctum    ---CTTTCAAGT------GTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATA
L. berlandieri   ---CTTTCAAGT------GTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTCTA
L. rupestre      ---CTTTCAAGT------GTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATA
D. pentagyna     ---CTTTCAAGT------CTACGATTAAATCCTTCAGTGTTACGGAGTCAAATGATAGAAAATTCTTTTATA
R. indica        ---CTTTCAAGT------GTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATA
H. drymarioides  ---CTTTCAAGT------GTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATA
H. micranthum    ---CTTTCAAGT------GTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATA
H. castaneifolia ---CTTTCAAGT------GTACGATTAAATCCTTCGGTGTTACGGAGTCAAATGATAGAAAATTCTTTTATA
S. digynum       ---CTTTCAAGT------GTACGATTAAATCCTTCGGTCTTACGAACTCAAATGGTAGAAAATTCTTTTATA
L. oligophyllum  ---CTTTCAAGT------GTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATA
H. neblinae      ---CTTTCAAGT------GTACGATTAAATCCTTCGGTGTTACGGAGTCAAATGATAGAAAATTCTTTTATA
H. mystax        ---CTTTCAAGT------GTACGATTAAATCCTTCGGTGTTACGGAGTCAAATGATAGAAAATTCTTTTATA
H. busseana      ---CTTTCAAGT------GTACGATTAAATCCTTCGGTGTTACGGAGTCAAATGATAGAAAATTCTTTTATA
H. gabunensis    ---CTTTCAAGT------GTACGATTAAATCCTTCGGTGTTACGGAGTCAAATGATAGAAAATTCTTTTATA
H. obtusifolia   ---CTTTCAAGT------GTACGATTAAATCCTTCGGTGTTACGGAGTCAAATGATAGAAAATTCTTTTATA
H. neocaledonic  ---CTTTCAAGT------CTACGATTAAATCCTTCAGTGTTACGGAGTCAAATGATAGAAAATTCTTTTATA
H. penicillanth  ---CTTTCAAGT------CTACGATTAAATCCTTCAGTGTTACGGAGTCAAATGATAGAAAATTCTTTTATA
H. spicata       ---CTTTCAAGT------GTACGATTAAATCCTTCGGTGTTACGGAGTCAAATGATAGAAAATTCTTTTATA
H. planchoni     ---CTTTCAAGT------GTACGATTAAATCCTTCGGTGTTACGGAGTCAAATGATAGAAAATTCTTTTATA
H. orientalis    ---CTTTCAAGT------GTACGATTAAATCCTTCGGTGTTACGGAGTCAAATGATAGAAAATTCTTTTATA
H. longipes      ---CTTTCAAGT------GTACGATTAAATCCTTCGGTGTTACGGAGTCAAATGATAGAAAATTCTTTTATA
L. volkensii     ---CTTTCAAGT------CTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATA
L. flavum        ---CTTTCAAGT------CTACGATTAAATCCTTCGGTCTTGCGAAGTCAAATGGTGGAAAATTCTTTTATA
L. catharticum   ---CTTTCAAGT------CTACGATTAAATTCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATA
L. arboreum      ---CTTTCAAGT------CTACGATTAAATCCTTCGGTCTTGCGAAGTCAAATGGTGGAAAATTCTTTTATA
R. linoides      ---CTTTCAAGT------CTACGATTAAATCCTTCAGTCTTACGAAGTCAAATGGTAGAAAAGTCTTTTATA
R. schomburgkii  ---CTTTCAAGT------GTACGATTAAATCCTTCGGTGTTACGGAGTCAAATGATAGAAAATTCTTTTATA
R. monsalveae    ---CTTTCAAGT------GTACGATTAAATCCTTCGGTGTTACGGAGTCAAATGATAGAAAATTCTTTTATA
A. pubescens     ---CTTTCAAGT------GTACGATTAAATCCTTCGGTCTTACGAAGTCAAACGGTAGAAAATTCTTTTATA
A. khasayama     ---CTTTCAAGT------GTACGATTAAATCCTTCGGTTTTACGAAGTCAAACGGTAGAAAATTCTTTTATA
A. saxatilis     ---CTTTCAAGT------GTACGATTAAATCCTTCGGTTTTACGAAGTCAAACGGTAGAAAATTCTTTTATA
L. comptonii     ---CTTTCAAGT------GTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATA
H. humiriifolia  ---CTTTCAAGT------GTACGATTAAA-------------------------------------------
I. griffithiana  ---CTTTCAAGG------CTACGATTAAATCCTTCAGTGTTACGGAGTCAAATGATAGAAAATTCTTTTATA
P. magnifolia    ---CTTTCAAGT------CTACGATTAAAACCTTCAGTGTTACGGAGTCAAATGGTAGAAAATTCTTTTATA
T. sinensis      ---CTTTCAAGT------GTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATA
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T. ovoidea        ---CTTTCAAGT------GTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATA
R. calophylla     ------------------------------------------------------------------------
AcalyphaInsulana  ---CTTTCAAAT------GTACAATTGAATCCTTCCTTGGTACGGAGTCAAATGCTAGAAAATTCATTTATA
BalanopsPancheri  GAACTTTCAAGT------GTACGACTAAATCCTTCAGTGGTATGGAGTCAAATGCTAGAAAACTCATTTATA
BischofiaJavanic  ---CTTTCAAGT------GTACGACTAAATCTTTCAGTGGTACGGAGTCAAATGCTAGAAAATTCATTTATA
BruguieraGymnorh  ---CTTTCAAGT------ATACAACTAAATCTTTCAGTGGTCCGGATTCAAATGTTAGAAAATTCATTTATA
ByrsonimaCrassif  ---CTTTCAAGT------ATACAAAAAAATCTTTCAGTGGTACGGAGTCAAATGCTCGAAAATTCATTTATA
MalpighiaGlabra   ---CTTTCAAGT------ATACGAAAAAATCTTTCAGTGGTACGGAGTCAAATGCTAGAAAATTCATTTCTA
CamptostylusMann  ---CTTTTAAGT------GTACGACTAAACCCTTCAGTGGTACGGAGTCAAATGCTAGAAAATTCATTTATA
ClusiaRosea       ---TTTTCAAGT------GTCCAACTAAATCCTTCAGTGGTACGAAGTCAAATGTTACAAACTTCATTTATA
CratoxylumCochin  ---CTTTCAAGT------GTAAAAATAAACCTTTCAGTGGTACGAAGTCAAATGCTAGAAAATTCATTTATA
CtenolophonEngle  ---CTTTTAAGT------GTACGACTAAATCCTTTAGCGGTACGGAATCAAATACTAGAAAATTCATTTATA
DrypetesLittoral  ---TTTGCAAGT------GTACGACTAAATCCTTCAGCGGTCCGGAGTCAAATGCTAGAAAATTCATTTATA
ElatineTriandra   ---CTTTCAAGT------GTCCGACTCAATCTTTCCGTGATCCGGAGTCAAATGTTAGAAAATTCCTTTATA
ErythroxylumNovo  ---TTTTCAAGT------GTACGACAAAATCCTTCGCCGGTACGTAGTCAAATGATAGAAAAATCATTTATA
EuonymusHamilton  ---CTTTCAAGT------GTGCGACTAAATTCTTCAGTAGTACGGAGTCAAATGGTGGACAATACTTTTCTA
EuphorbiaHumifus  ---CTTTCAAGT------GTACAAATCAATCCTTTGGTAGTACGGAGTCAAATGCTAGAAAATTCATATCTA
EuphroniaGuianen  ---CTTTCAAGC------GTACGGCTGAATTTTTCAGTGGTACGAAGTCAAATGCTGGAAAACTCATTTATA
FlacourtiaIndica  ---CTTTCAAGT------GTACGACTAAACCTTTCAGTGGTACGGAGTCAAATGCTAGAAAATGCATTTCTA
FlueggeaVirosa    ---CTTTCAAGT------GTACGACTCAATCTTTCAGTGGTACGGAGTCAAATGCTAGAAAATGCCTTTTTA
GarciniaSubellip  ---CTTTCAAGT------GTACAATTAAATCCTTCAGTGGTACGGAGTCAAATGTTAGAATATTCATTTATA
GomphiaSerrata    ---CTTTCAAGT------ATACGACTAAAGCCTTCAGTGGTACGGAGTCAAATGCTAGAAAATTCATTTATA
HumiriaBalsamife  ---CTTTCAAGT------GTACGACTAAATCCTTCAGTGGTACGGAGTCAAATGCTAGAGAATTCATTTATA
IonidiumCommune   ---CTTTTAAGT------GTACGCCTAAACCCCTTAGTGGTGCGCAGTCAAATACTTGAAAATTCATTTATA
IrvingiaMalayana  ---CTTTCAAGT------GTACGATTAAATCCTTCAGTAGTACGGAGTCAAATGCTAGAAAATGCATATATA
IxonanthesReticu  ---CTTTCAAGT------GTACGCCTCAATTCTTTGGTGGTACGGAGTCAAATGCTAGAAAATTTATTTATA
JatrophaIntegerr  ---CTTTCAAAT------GTAAAATTAAATCCTTCGGTTGTACGAAGTCAAATGCTAGAAAATTCATTTCTA
KiggelariaAfrica  ---CTTTTAAAT------GTACGACTAAATCCTTCAGTGGTACGGAGTCAAATGCTAGAAAATTCATTTATA
LacistemaAggrega  ---CTTTTAAGTTCAAGTGTACGACTAAACCCTTCGGTGGTACGGAGTCAAATGTTAGAAAATTCATTTATA
LunaniaParviflor  ---CTTTCAAGTTCCAGCGTACGACTAAACCTTTTAGTGGTGCGGAGTCAAATGCTAGAAAATTCATTTATA
ManihotEsculenta  ---CTTTCAAAT------GTACAATTAAATCCTTTGGTGGTACGGAGTCAAATGTTCGAAAATTCATTTATA
OxalisCorniculat  ---CTTTCAAAT------GTGCGACTAAATCCTTCGGTGGTACGGAGTCAAATGTTGGAAAAGTCTTTTATA
PassifloraQuadra  ---CTTTCAAGT------ATACGAAAAAATCTTTCAGTGGTACGGAGTCAAATGCTAGAAAATTCATTTATA
PhyllanthusFlexu  ---TTTTCAAGT------CTACGACTCAATCTTTCAGTGGTACGGAGTCAAATGCTAGAAAATACCTTTTTA
PimelodendronGri  ---CTTTCAAAT------GTACAATTAAATCCTTCGGTAGTACGGAGTCAAATGCTGGAAAATTCATTTATA
RicinusCommunis   ---CTTTCAAAT------GTACAATTTAATCCTTCGTTGGTACGGAGTCAAATGATAGAAAATTCATTTATA
SacoglottisSp     ---CTTTCAAGT------GTACGACTAAATCCTTCAGTGGTACGGAGTCAAATGCTAGAAAATTCATTTATA
ScageaOligostemo  ---CTTTCAAGT------GTACGACTCCATTTTTCAGTGGTACGAAGTCAAATGCTAGAAGATTCATTTATA
TrigoniaBolivian  ---CTTTTAAAT------GTACGACTAAATCCTTCAGTGGTACGGAGTCAAATGCTAGAAAATTCATTTATA
AlbiziaTomenosaJ  ---TTTGCAAAT------GTGCGGCTAAATCCTTCAGTGGTACGGAGTCAAATGTTGGAAAAGTCATTTATA
KerriaJaponica    ---TTTTCAAGT------ATGCGACCAAACCTTTCAGTGGTACGGAGTCAAATGCTAGAAAATTCATTTATA
DatiscaCannabina  ---ATTTCAAGT------GTGCGACTAAATCCTTCAGTGGTACGGAGTCAAATGCTAGAAAATACATTTCTA
QuercusRubra      ---TTTTCAAGT------GTTCGACGAAATCCTGCAGTGGTGCGGAATCAAATGCTAGAAAATTCATTTCTA


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Taxon/Node        890123456789012345678901234567890123456789012345678901234567890123456789
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L. lewisii        ATAGAT------AATAGAAAGTGTAAATTGGATACAAAAATTCCAATTTTTTCCTTGATTTCAGCTTTGGAA
L. perenne        ATAGAT------AATAGAAAGTGTAAATTGGATACAAAAATTCCAATTTTTTCCTTGATTTCAGCTTTGGAA
L. pratense       ATAGAT------AATAGAAAGTGTAAATTGGATACAAAAATTCCAATTTTTTCCTTGATTTCAGCCTTGGAA
L. narbonense     ATAGAT------AATACTAAGCATAAATTTGATACAAAAATTCCAATTTTTTCGTTGATTGGAGCCTTTGAA
C. selaginoides   ATGGAT------AATACTACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAA
L. hirsutum       ATAGAT------AATACTAGGCATAAATTTGATACAATAATTCCAATTCTTTCATTGATTGCAGCCTTGGAA
L. hypericifolium------------------------------------------------------------------------
L. usitatissimum ATAGAT------AATACTAGGCATAAATTTGATACAATAATTCCAATTCTTTCATTGATTGCAGCCTTGGAA
L. nervosum       ATAGAT------AATAGAAAGCATAAATTTGATACAAAAATTCCAATTTTTTCCTTGATTTCAGCCTTGGAA
L. bienne         ATAGAT------AATACTAAGCATAAATTTGATACAAAAATTCCAATTTTTTCTTTGATTGCAGCCTTGGAA
L. monogynum      ATAGAT------AATACTAAGCATAAATTTGATGCAAAAATTCCAATTTTTTCTTTGATTGCAGCCTTGGAA
L. suffruticosum ATGGAT------AATACTACGCAGAAATTTGATACAATCATTCCAATTTATTCGTTGATTGGAACCTTGGAA
H. clevelandii    ATGGAT------AATACTACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAA
H. disjunctum     ATGGAT------AATACTACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAA
L. berlandieri    ATGGAT------AATACTACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGAAA
L. rupestre       ATGGAT------AATACTACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAA
D. pentagyna      ATAGAT------AATACTATGAAGAAATTTGATACAATAGTTCCAATTATTTCGTTGGTTGGATCTTTGGCA
R. indica         ATAGAT------AATACTACGCATAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAA
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H. drymarioides  ATGGAT------AAGACTACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAA
H. micranthum    ATGGAT------AATACTACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAA
H. castaneifolia ATAGAT------AATACTATGAAGAAATTTGATACAATAGTTCCAATTATTTCGTTGATTGGATCCTTGGCA
S. digynum       ATGGAT------AATACTACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAA
L. oligophyllum  ATGGAT------AATACTGCGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAA
H. neblinae      ATAGAT------AATACTATGAAGAAATGTGATACAATAGTTCCAATTATTTCGTTGATTGGATCCTTGGCA
H. mystax        ATAGAT------AATACTATGAAGAAATTTGATACAATAGTTCCAATTATTTCGTTGATTGGATCCTTGGCA
H. busseana      ATAGAT------AATACTATGAAGAAATTTGATACAATAGTTCCAATTATTTCGTTGATTGGATCCTTGGCA
H. gabunensis    ATAGAT------AATACTATGAAGAAATTTGATACAATAGTTCCAATTATTTCGTTGATTGGATCCTTGGCA
H. obtusifolia   ATAGAT------AATACTATGAAGAAATTTGATACAATAGTTCCAATTATTTCGTTGATTGGATCCTTGGCA
H. neocaledonic  ATAGAT------AATACTATGAAGAAATTTGATACAATAGTTCCAATTATTTCGTTGGTTGGATCTTTGGCA
H. penicillanth  ATAGAT------AATACTATGAAGAAATTTGATACAATAGTTCCAATTATTTCGTTGGTTGGATCTTTGGCA
H. spicata       ATAGAT------AATACTATGAAGAAATTTGATACAATAGTTCCAATTATTTCGTTGATTGGATCCTTGGCA
H. planchoni     ATAGAT------AATACTATGAAGAAATTTGATACAATAGTTCCAATTATTTCGTTGATTGGATCCTTGGCA
H. orientalis    ATAGAT------AATACTATGAAGAAATTTGATACAATAGTTCCAATTATTTCGTTGATTGGATCCTTGGCA
H. longipes      ATAGAT------AATACTATGAAGAAATTTGATACAATAGTTCCAATTATTTCGTTGATTGGATCCTTGGCA
L. volkensii     ATGGAG------AATACTACGCAGAAATTTGATACAATAATTCCAATTTATTCGTTGATTGGAACCTTGGAA
L. flavum        ATGGAT------AATACTACGCAGAAATTTGATACAATAATTCCTATTCTTTCGTTGATTGGAGCCTTGGAA
L. catharticum   ATGGAT------AATACTACGCAGAAATTTGATACAATAATTCCAATTTTTTCGTTGATTGGAGCCTTGGAA
L. arboreum      ATGGAT------AATACTACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAA
R. linoides      ATAGAT------AATACTACGCATAAATTTGATCCAATAATTCCAATTCTTTCCTTGATTGGAGCTTTGGAA
R. schomburgkii  GTAGAT------AATACTATGAAGAAATTTGATACAATAGTTCCAATTATTTCGTTGATTGGATCCTTGGCA
R. monsalveae    GTAGAT------AATACTATGAAGAAATTTGATACAATAGTTCCAATTATTTCGTTGATTGGATCCTTGGCA
A. pubescens     ATAGAT------AATACTACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAA
A. khasayama     ATAGAT------AATACTACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAA
A. saxatilis     ATAGAT------AATACTACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAA
L. comptonii     ATGGAT------AATACTACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAA
H. humiriifolia  ------------------------------------------------------------------------
I. griffithiana  ATAGAT------AATACTATGAAGAAATTTGATACAATAGTTCCAATTATTTCGTTGGGTGGATCCTTAGCA
P. magnifolia    ATAGAT------AATACTATGAAGAAATTTGATACAATAGTTCCAATTATTTCGTTGGTTGGATCCTTAGCA
T. sinensis      ATAGAC------AATACTACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAA
T. ovoidea       ATAGAC------AATACTACGCAGGAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAA
R. calophylla    ------------------------------------------------------------------------
AcalyphaInsulana ATAGATAAAGATAATACTCTGAAGAAACTCGATATAATAGTTCCAATTATTCCTTTAATTGGATCATTGGCA
BalanopsPancheri ATAGAT------AATAATATGAAGAAACTCGATACAATAGTTCCATTTAGTCCTGTGATTGAATCATTGGCA
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BruguieraGymnorh CTAGAT------AATGCTATAAAAAAACTCGACACAATAGTTCCAATTATTCCTTTGATTGGATCATTGGCA
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MalpighiaGlabra  ATAGAT------AATATTAGAAAGAAACTTGATTCAAGAGTTCCAATTATTCCTTTGATTGGATCATTGTCA
CamptostylusMann ATAGAT------AATACTATGAATAAACTCGATACAATAGTTCCAATTATTACTTTGATTGGATCATTGGCA
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CratoxylumCochin ATAGAG------AATACTATGAAGAAACTGGATACAATAGTTTCAATTATTCCTTTGATTGAATCATTGGCA
CtenolophonEngle ATAGAT------AATACTCTGAAAAACCTCGATACAATAATTCCAACTATTCCTTTGATTGGATCATTGGCA
DrypetesLittoral ATAGAC------AATACTATGAAAAAAATCGATACAACAGTTCCAATTATTCCAATGATTGGATCATTGGCA
ElatineTriandra  ATAGAT------AATACTAGCAAGAAATTCGAGCCAACAGTTCCTATTATTCCTTTGATTGGATCATTGGCA
ErythroxylumNovo ATAGAT------AATACTATGAAGAAACTCGATTCAACAGTTCCAATTATTCCTTTGATTGGAACATTGGCA
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EuphorbiaHumifus ATAGATAAAGATAATACTATGAAGAAACTCGATACAATAGTTCCAATTATTCCTTTAATTAGATTATTGGCA
EuphroniaGuianen ATAGAT------AATAATATGAAGAAACTTGATACAATAGTTCCAATAATTCCTGTGATTGAATCATTGGCA
FlacourtiaIndica ATAGAG------AATACTATGAATAAACTCGATACAACAGTTTCAATTATTCCTTTGATTGGATCATTAGCA
FlueggeaVirosa   ATAGAT------AATGCTATGAAGAAAGTTGATACAAGAATTCCAATTATTCCTTTGATTCGATCATTGGCA
GarciniaSubellip ATAGAT------AATACTATGAAGAAACTCGATACAATAGTTCCAATTATTCCTTTGATTGGATCATTGTCA
GomphiaSerrata   ATAGAT------AATACTATGAAAAAACTCGATACAATAGTTCCAATCATTCCGTTGATTGGATCCTTGGCA
HumiriaBalsamife ATAGAT------AATACTATGAAGAAACTCGATACAATAGTTCCAATTATTTCTTTGATTGGATCATTGGCA
IonidiumCommune  ATTGAT------AACACCATAAAAAAACTCGATACAATCGTTCCAATTCTTCCTTTGATTGAATCATTAGAA
IrvingiaMalayana ATGGAT------AATACTATGGAGAAACTTGATACAATAGTTCCAATTATTTCTTTGATTGGATCATTAGCA
IxonanthesReticu ATAGAT------AATACTATGAAGAAACTCAATACAATAGTTCCAATTATTTCGTTGATTGGATCATTAGCA
JatrophaIntegerr ATAGATAAAGCTAATACTATGAAGAAACTCGATACAATAGTTCCAATTATTCCTTTGATTGGATCATTGTCA
KiggelariaAfrica ATAGAT------AATACTATGAATAAACTCGATACAATAGTTCCAATTATTCCGTTGATTGGGTCATTGGCA
LacistemaAggrega ATAGAT------AATACTATGAATAAACTCGATACAATAGTTCCGATTATTCCTTTGATTGGATCATTGGCA
LunaniaParviflor ATAGAT------AATACTATGAATAAACTCGATACAATAGTTTCAATTATTCCTTTGATTGGATCATTAGCA
ManihotEsculenta ATAGATAAAGATAGTACTATGAAGAAACTCGATACAATAGTTCCAATTATTCCTTTAATTGGATCATTGGCA
OxalisCorniculat ATAGAT------AATGTTATGAAGAAACTCGATACAATTATTCCAATTATTCCTCTGGTTGGATCATTGTCA
PassifloraQuadra ATAGAT------AATATTAGAAAGAAACTTGATTCAAGAGTTCCAATTATTCCTTTGATTGGATCATTGTCA
PhyllanthusFlexu ATAGAT------AATGCTATGAAGAAAGTTGATACAAGAATTCCAATTTTTCCTTTGATTCGATCATTGGCA
PimelodendronGri ATAGATAAAGATAATATTATGAAGAAACTCGATACAATAGTTCCAATTATTCCTTTGATTGGATCATTGGCA
RicinusCommunis  ATAGATAAAGATAATACTATGAAGAAACTCGATACAATAGTTCCAATTATTCCTTTAATTAGATCATTGGCA
SacoglottisSp    ATAGAT------AATACTATGAAGAAACTCGATACAATAGTTCCAATTATTCCTTTGATTGGATCATTGGCA
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ScageaOligostemo ATAGAT------AATACTATGAGGAAAGCCGATACAATAGTTCCAATTATTCCTTTGATTGGATCATTGGCA
TrigoniaBolivian ATAGAT------AATACTATGAATAAACTCGATACAATAGTTCCAATTATTCCGTTGATTGGGTCATTGGCA
AlbiziaTomenosaJ ATGGAA------AATCTTATGAAAAAGCTTGATACAATAATTCCAATTATTCCTCTAATTAGATCATTAGCT
KerriaJaponica   ATGGAT------AATGCTATGAAGAAGCTCGATACACTAGTTCCAATTATTCCTTTGATTGGATCATTTGCT
DatiscaCannabina ATAGAT------AATTCTAGGAAGAAATTCGATACATTAGTTCCAATTATGGCTCTGCTTGGATCATGGGCT
QuercusRubra     CTAAAT------AATGCTCCCAATAAACTCGATACAATGGTTCCAATTATTCCTCTGATTGGATCATTGGCT


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                  333333333344444444445555555555666666666677777777778888888
Taxon/Node        012345678901234567890123456789012345678901234567890123456
---------------------------------------------------------------------------
L. lewisii        AAAGCGAAATTTTGTAACGCAGTAGGGCATCCTATTAGTAAACCGACTTGGGCTCAT
L. perenne        AAAGCGAAATTTTGTAACGCAGTAGGGCATCCTATTAGTAAACCGACTTGGGCTCAT
L. pratense       AAAGCGAAATTTTGTAACGCAGTAGGGCATCCTATTAGTAAACCGACTTGGGCTCAT
L. narbonense     AACGCTCAATTTTGTAACGATGCAGGGCATCCTATTAGTAAACCGAATCGGGCTCAT
C. selaginoides   AAAGACAAATTTTGTAACGGAGTTGGGCATCCTATTAGTAAACCGGCTTGGGCTGAT
L. hirsutum       AAAGCTAAATTTTGTAACGCAGTAGGGCATCCCATTAGTAAACCGACTCGGGCTGAT
L. hypericifolium ---------------------------------------------------------
L. usitatissimum  AAAGCTAAATTTTGTAACGCAGTAGGGCATCCCATTAGTAAACCGACTCGGGCTGAT
L. nervosum       AAAGATCAATTTTGTAACGCAGTAGGGCATCCTATTAGTAAACCGACGTGGGCTCAT
L. bienne         AAAGGCCAATTTTGTAACGCAGTAGGACATCCTATTAGTAAACCGAATTGGGCTCAT
L. monogynum      AAAGCTCAATTTTGTAACGCAGTAGGGCATCCTATTAGTAAACCGAATTGGGCTCAT
L. suffruticosum  AAAGCAAAATTTTGTAACGGAGTTGGGCATCCCATTAGTAAACCGGCTTGGGCTGAT
H. clevelandii    AAAGACAAATTTTGTAACGGAGTTGGGCATCCTATTAGTAAACCGGCTTGGGCTGAT
H. disjunctum     AAAGACAAATTTTGTAACGGAGTTGGGCATCCTATTAGTAAACCGGCTTGGGCTGAT
L. berlandieri    AAAGACAAATTTTGTAACGGAGTTGGGCATCCTATTAGTAAACCCGCTTGGGCTGAT
L. rupestre       AAAGAGAAATTTTGTAACGGAGTTGGGCATCCTATTAGTAAACCGGCTTGGGCTGAT
D. pentagyna      AAAACGAAATTTTGTAACGCAGTAGGACATCCCATTAGTAAACCGACTCGGGCTGAT
R. indica         AAAGCGAAATTTTGTAACGGAGTAGGGCATCCCATTAGTAAACCGACTCGGGCTGAT
H. drymarioides   AAAGACAAATTTTGTAACGGAGTTGGGCATCCTATTAGTAAACCGGCTTGGGCTGAT
H. micranthum     AAAGACAAATTTTGTAACGGAGTTGGGCATCCTATTAGTAAACCGGCTTGGGCTGAT
H. castaneifolia  AAAACGAAATTTTGTAACGCAGTAGGACATCCCATTAGTAAACCGACTCGGGCTGAT
S. digynum        AAAGATCAATTTTGTAACGGAGTTGGGCATCCTATTAGTAAACCGGCTTGGGCTGAT
L. oligophyllum   AAAGACAAATTTTGTAACGGAGTTGGGCATCCTATTAGTAAACCGGCTTGGGCTGAT
H. neblinae       AAAACGAAATTTTGTAACGCAGTAGGACATCCCATTAGTAAACCGACTCGGGCTGAT
H. mystax         AAAACGAAATTTTGTAACGCAGTAGGACATCCCATTAGTAAACCGACTCGGGCTGAT
H. busseana       AAAACGAAATTTTGTAACGCAGTAGGACATCCCATTAGTAAACCGACTCGGGCTGAT
H. gabunensis     AAAACTAAATTTTGTAACGCAGTAGGACATCCCATTAGTAAACCGACTCGGGCTGAT
H. obtusifolia    AAAACGAAATTTTGTAACGCAGTAGGACATCCCATTAGTAAACCGACTCGGGCTGAT
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H. penicillanth   AAAACGAAATTTTGTAACGCAGTAGGACATCCCATTAGTAAACCGACTCGGGCTGAT
H. spicata        AAAACGAAATTTTGTAACGCAGTAGGACATCCCATTAGTAAACCGACTCGGGCTGAT
H. planchoni      AAAACGAAATTTTGTAACGCAGTAGGACATCCCATTAGTAAACCGACTCGGGCTGAT
H. orientalis     AAAACGAAATTTTGTAACGCAGTAGGACATCCCATTAGTAAACCGACTCGGGCTGAT
H. longipes       AAAACGAAATTTTGTAACGCAGTAGGACATCCCATTAGTAAACCGACTCGGGCTGAT
L. volkensii      AAAGCCAAATTTTGTAACGAAGTCGGGCATCCCATTAGTAAACCGGCTTGGGCGGAT
L. flavum         AAAGCCAAATTTTGTACCGGAGTTGGGCATCCCATTAGTAAACCGGCTTGGGCCGAT
L. catharticum    AAAGCCAAATTTTGTAACGGAGTTGGGCATCCCATTAGTAAACCGGCTTGGGCTGAT
L. arboreum       AAAGCCAAATTTTGTACCGGAGTTGGGCATCCCATTAGTAAACCGGCTTGGGCCGAT
R. linoides       AAAGCGAAATTTTGTAATGGAGTCGGGCATCCTATTAGTAAACCGGCTTGGGCTGAT
R. schomburgkii   AAAACGAAATTTTGTAACGCAGTAGGACATCCCATTAGTAAACCGACTCGGGCTGAT
R. monsalveae     AAAATGAAATTTTGTAACGCAGTAGGACATCCCATTAGTAAACCGACTCGGGCTGAT
A. pubescens      AAAGCCAAATTTTGTAACGGAGTAGGGCATCCCATTAGTAAGCCGACTCGGGCTGAT
A. khasayama      AAAGCAAAATTTTGTAACGGAGTAGGGCATCCCATTAGTAAGCCGACTCGGGCTGAT
A. saxatilis      AAAGCAAAATTTTGTAACGGAGTAGGGCATCCCATTAGTAAGCCGACTCGGGCTGAT
L. comptonii      AAAGACAAATTTTGTAACGGAGTTGGGCATCCCATTAGTAAACCGGCTTGGGCTGAT
H. humiriifolia   ---------------------------------------------------------
I. griffithiana   AAAACTAAATTTTGTAACGCAGTAGGACATCCCATTAGTAAACCGACTCGGGCTGAT
P. magnifolia     AAAACGAAATTTTGTAACGTAGTAGGGCATCCCATTAGTAAACCGACTCGGGCTGAT
T. sinensis       AAAGCGAAATTTTGTAACGGAGTAGGGCATCCCATTAGTAAACCGACTCGGGCTGA-
T. ovoidea        AAAGCGAAATTTTGTAACGGAGTAGGGCATCCCATTAGTAAACCGACTCGGGCTGAT
R. calophylla     ---------------------------------------------------------
AcalyphaInsulana  AAAACGAAATTTTGTAACGCAGTAGGACATCCCATTAGTAAACCGACCTGGGCTGAT
BalanopsPancheri  AAAACGAAATTTTGTAACGCAGTAGGACATCCCATTAGTAAACCGGCCTGGGCGGAT
BischofiaJavanic  AAAATGCAATTTTGTAACTCAGTAGGACATCCTACTAGTAAACCTATTTGGACTGGT
BruguieraGymnorh  AAGACGAACTTTTGTAACGAAATAGGATATCCCGTTAGTAACCCGACCCGGGCGGCT
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MalpighiaGlabra   AAAACAAAATTTTGTAACGCAGTAGGGCATCCCATTAGTAAACCGAGCTGGGCGGAT
CamptostylusMann  AAAACGAAATTTTGTAACACAGCGGGACATCCCATTAGCAAACCGGCTCGGGCGGAT
ClusiaRosea       AAAATGAAATTTTGTAATGCAGTAGGACATTCTGTTAGTAAATCGACCTGGGCTGAT
CratoxylumCochin  AAAATGAAAATTTGTAACGAAGTAGGACATCCCATTAGTAAACCGACCTGGACCGAT
CtenolophonEngle  AAAAGAAAATTTTGTAATGCAGTAGGGCATCCCATTAGTAAACTGACCCGGGCTGAT
DrypetesLittoral  AAAACGAAATTTTGTAACGCAGTGGGGCATCCCATTAGTAAACCGACCCGGGCCGAT
ElatineTriandra   AAAACGAAATTTTGTAACACAACAGGACAGCCCATTAGTAAAGCGAGCTGGGCTGAT
ErythroxylumNovo  AAAACGAGATTTTGTAACGAAAAAGGACATCCCATTAGTAACTCGGCCCGGGCTGAT
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EuphorbiaHumifus  AAAACGAAATTTTGTAACGCAGTAGGACATCCTATTAGTAAACCGATCCGGACTCAT
EuphroniaGuianen  AAAACAAAATTTTGTAATGTGGTAGGACATCCCCTTAGTAAATCGGACCGGACTGAT
FlacourtiaIndica  AAAATGAAATTTTGTAATGCAGTAGGACATCCCATTAGTAAACCGACCTGGGGCGAT
FlueggeaVirosa    AAAACGAAATTTTGTAATGCAGTAGGACATCCTATTAGTAAACCTATTTGGGCTGGT
GarciniaSubellip  AAAATGACATTTTGTAATGCAGTAGGATATCCCATTAGTAAATCGACCTGGGCTGAT
GomphiaSerrata    AAAATGAAATTTTGTAACACAGTAGGACATCCCATTAGTAATCCGACCCGGGCTGGT
HumiriaBalsamife  AAAATGAAATTTTGTAACGCAGTAGGGCATCCCATTAGTAAACCGATCCGGGCTGAT
IonidiumCommune   AAAATGAAATTTTGTAATGGAATAGGACAGCCCATTGGTAAACCCACTTGGGCTGAT
IrvingiaMalayana  AAAACGAAATTTTGTAATGCAGTAGGACATCCTATTAGTAAACCGATCCGGGCTGAT
IxonanthesReticu  AAAACGAAATTTTGTAACGCAATAGGCCATCCCATTAGTAAACCGCCTTGGGCTGAT
JatrophaIntegerr  AAAACGAAATTTTGTAAGGCAGTAGGACATCCCATTAGTAAACCGGTCCGGACTGAT
KiggelariaAfrica  AAAGCAAAATTTTGTAACGCAACAGGACATCCCTTTAGTAAACCGACTTGGGCGGAT
LacistemaAggrega  AAAACGAAATTTTGTAACGCAGTAGGACATCCCATTAGTAAACCGGCTTGGGCAGAT
LunaniaParviflor  AAAATGAAATTTTGTAACGTAGTAGGACATCCCATTAGTAAACCGACCTGGGCCGAT
ManihotEsculenta  AAAACGAAATTTTGTAACGCAGTAGGACATCCCATTAGTAAACCGATTCGGGCGGAT
OxalisCorniculat  AAATCAAAATTTTGTAACACATTAGGGTATCCCATTAGTAAGCCTACTTGGGCGGAT
PassifloraQuadra  AAAACAAAATTTTGTAACGCAGTAGGGCATCCCATTAGTAAACCGAGCTGGGCGGAT
PhyllanthusFlexu  AAAACGAAATTTTGTAACGCAGTAGGGTATCCTATTAGTAAACCTATTTGGGCTGGT
PimelodendronGri  AAAACGCAATTTTGTAATGCAGTAGGACATCCCATTAGTAAACCGACCCGGGCTGAT
RicinusCommunis   AAAATGAAATTTTGTAACGCAGCAGGACATCCCATTAGTAAACCGACCTGGGCGGAT
SacoglottisSp     AAAACGAAATTTTGTAACGCAGTAGGGCATCCCATTAGTAAACCGACCCGGGCTGAT
ScageaOligostemo  AAAACACAATTTTGTAACGTAGTAGGACATCCCATTAGTAAACCGATTTGGGCTGAT
TrigoniaBolivian  AAAGCAAAATTTTGTAACGCAACAGGACATCCCTTTAGTAAACCGACTTGGGCGGAT
AlbiziaTomenosaJ  AAAGCAAAATTTTGTAATGTATTAGGACATCCCATTAGTAAGCCGGTCTGGGCCGAT
KerriaJaponica    AAAGTTAAATTTTGTAACGCATTAGGACATCCTATTAGTAAGTCCACCTGGTCGGAT
DatiscaCannabina  AAAGTGCAATTTTGTAACGTATGGGCGCATCCTATTAGTAAGTCCACCTGGGCGGAT
QuercusRubra      AAAGCGAAATTTTGTAACGCAGTAGGGCATCCAATTAGTAAGCTGACTCGGGCCGAT
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Appendix B: Voucher specimen information for Linaceae accessions utilized in Chapters 3 and 4.

Table A1: Species sampled for phylogenetic analyses, with biogeographic distributions, morphological character states, DNA accession numbers, voucher specimen information, and GenBank accession numbers for previously-published sequences used in these analyses. Distribution categories: eSAM = eastern South America, wSAM = western South America, nNAM = North America North of Mexico, MEX = Mexico, SAF = South Africa, Eur = Eurasia, TAF = tropical Africa. Morphology: fruit segments (0 = ten, 1 = six, 2 = five, 3 = four), pollen type [0 = tricolpate, 1 = few-porate (<12), 2 = multiporate (12-20)], false septa (0 = incomplete, 1 = intermediate, 2 = complete), stylar fusion (0 = free, 1 = fused). Accessions from which ITS was cloned are indicated by ‡. Accessions whose sequences were included in the reduced data matrix in Chapter 5 are indicated by *. Sequences newly obtained for this study are indicated by "-" rather than GenBank accession numbers, which will be obtained at the time of journal publication.

Taxon	Geographic Distribution Category	Morph.	Acc. #	Voucher	Locality	Herbarium	matK, trnK, ndhF, trnL-F, ITS
Cliococca selaginoides (Lam.) Rogers & Mildner	eSAM+ wSAM	0,0,2,0	049	Krapovickas & Cristóbal 34169	Brazil, Rio Grande do Sul	MO 2777516	-,-,FJ160774,FJ160858, FJ169540
			206‡*	Baeza & Rodriguez 1900	Chile, Region VIII, Prov. Arauco	CONC	-,-,-,-,-
			220‡	JRM 2004-XII-11.1	Uruguay, Cerro Largo	TEX	-,-,-,-,-
Hesperolinon clevelandii Small	nNAM	1,0,0,0	022*	Ertter 8537	U.S.A., CA, Solano Co.	TEX	-,-,-,-,-
Hesperolinon disjunctum Sharsmith	nNAM	1,0,0,0	025*	J. McDill 087	U.S.A., CA, San Benito Co.	TEX	-,-,-,-,-
Hesperolinon drymarioides Small	nNAM	1,0,0,0	047‡*	Dibble and Griggs 14	U.S.A., CA, Lake Co.	MO 3204309	-,-,-,-,-

Hesperolinon micranthum Small	nNAM	1,0,0,0	048*	van der Werff & Clark 4574	U.S.A., CA, San Diego	MO 3099280	-,FJ160818,FJ160775, FJ160859,FJ169542
Linum acuticarpum C.M.Rogers	SAF	0,0,0,1	SA3‡*	McDill 2005-XII-23.1	South Africa, Western Cape	TEX	-,-,-,-,-
Linum adustum E.Mey. ex Planch.	SAF	0,0,0,1	SA13	Pillans 7354	South Africa, Western Cape	UCT	-,-,-,-,-
			SA8‡	J. McDill 2006-I-12.1	South Africa, Western Cape, Stilbaai	TEX	-,-,-,-,-
Linum aethiopicum Thunb.	SAF	0,0,0,1	055‡	Bremer 577	South Africa, Eastern Cape	MO 4044959	-,-,-,-,-
			SA11‡	J. McDill 2006-I-13.1	South Africa, Western Cape, Cape Agulhas	TEX	-,-,-,-,-
			SA12‡*	J. McDill 2006-I-9.1	South Africa, Eastern Cape, Cape St. Francis	TEX	-,-,-,-,-
			SA7‡	J. McDill 2006-I-12.2	South Africa, Western Cape, DeHoop N.P.	TEX	-,-,-,-,-
Linum africanum L.	SAF	0,0,0,1	SA1*	J. McDill 2005-XII-16.1	South Africa, Western Cape	TEX	-,-,-,-,-
Linum alatum (Small) Winkler	SAF	2,2,2,1	307*	Rogers 13131	U.S.A., TX, Refugio Co.	WUD	-,-,-,-,-
Linum arboreum L.	EUR	0,0,0,0	164*	R. Dechamps 9103	Greece, Crete	MO 3919917	-,-,-,-,-
Linum arenicola (Small) Winkler	nNAM	0,0,1,0	268*	Rogers 12148	U.S.A., FL, Monroe Co.	WUD	-,-,-,-,-
Linum aristatum Engelm.	nNAM	2,2,2,1	041*	J. Spencer & D.	Mexico, Chihuahua	TEX	-,-,-,-,-

				Atwood 536			
			233	J. McDill 2004-VI-12.1	U.S.A., TX, Loving Co.	TEX	-,-,-,-,-
Linum australe Heller	nNAM +MEX	2,2,2,1	232	J. McDill 23	U.S.A., AZ, Coconino	TEX	-,-,-,-,-
Linum bahamense North. ssp. bahamense	nNAM	0,0,0,0	006	D.S. Correll 42766	Bahamas, Little Abaco Isl.	TEX	-,-,-,-,-
			007*	D.J. Harvey 7746	Bahamas, North Andros Isl.	TEX	-,-,-,-,-
Linum bahamense North. ssp. *corallicola* (Small) Rogers	nNAM	0,0,0,0	F1	Correll 44802	Bahamas, Grand Bahama Isl.	F	-,-,-,-,-
Linum berlandieri ssp. *berlandieri* Hooker	nNAM	2,2,2,1	027	B.L. Turner 21-427	U.S.A., TX, Kerr Co.	TEX	-,-,-,-,-
			234	J. McDill 2005-V-14.1	U.S.A., TX, Randall Co.	TEX	-,-,-,-,-
			236*	J. McDill 2005-V-14.4	U.S.A., TX, Potter Co.	TEX	-,-,-,-,-
			241	JRM 2005-V-14.5	U.S.A., TX, Hutchinson Co.	TEX	-,-,-,-,-
			246	J. McDill ??	U.S.A., TX, Kerr Co.	TEX	-,-,-,-,-
Linum berlandieri ssp. *filifolium* (Shinners) Rogers	nNAM	2,2,2,1	028*	B.L. Turner 99-127	U.S.A., TX, Val Verde Co.	TEX	-,-,-,-,-
			291	Sandra Aquilar Ruiz 19	Mexico, Coahuila	TEX	-,-,-,-,-
Linum bienne Mill.	EUR	n.a.	214	J. McDill 2004-XII-05-1	Chile, Reg. VIII Biobío	TEX	-,-,-,-,-
Linum brevifolium A.St.-Hil. & Naudin	eSAM	0,0,1,0	193*	R.Mildner 3	Brazil, Santa Catarina	WUD	-,-,-,-,-

Linum burkartii Mildner	eSAM	0,0,1,0	221*	JRM 2004-XII-13.1	Uruguay, Paysandú	TEX	-,-,-,-,-
Linum carneum A.St.-Hil.	eSAM	0,0,1,0	200*	Marchesi & Vignale 24-II-1996	Uruguay, Rio Negro	MVFA 25419	-,-,-,-,-
Linum carteri Small	nNAM	2,2,2,1	266*	Rogers 12153	U.S.A., FL, Dade Co.	WUD	-,-,-,-,-
Linum catharticum L.	EUR	0,0,0,0	151	Skvortsov et al. 4263078	Estonia	MO 4263078	-,-,-,-,-
			294*	O. Dollenz 682	Chile	GH	-,-,-,-,-
			L43	n.a.	Germany	MJG 040944	-,FJ160835,FJ160796, FJ160880,FJ169533
Linum chamissonis Schiede	wSAM	0,0,1,0	195*	R. Mildner 15	Chile, Reg. VIII Biobío	WUD	-,-,-,-,-
			215*	JRM 2004-XII-05.2	Chile, Reg. VIII Biobío	TEX	-,-,-,-,-
Linum compactum A. Nelson	nNAM	2,2.2,1	231	B.B. Simpson 1-V-05-1	U.S.A., TX, Colorado Co.	TEX	-,-,-,-,-
			SD1*	J. McDill 2008-VII-20.1	U.S.A., SD, Jackson Co.	TEX	-,-,-,-,-
Linum comptonii C.M.Rogers	SAF	0,0,0,1	059*	Esterhuysen 35882	South Africa, Western Cape, Stellenbosch	MO	-,FJ160821,FJ160778, FJ160862,FJ169550
			SA19	Esterhuysen 35882	South Africa, Western Cape, Stellenbosch	UCT	-,-,-,-,-
Linum cremnophilum I.M.Johnst.	wSAM	0,0,0,1	187*	J.M. Johnston 5707	Chile, Reg. II Antofagasta	WUD	-,-,-,-,-
Linum cruciata Planch.	MEX	0,0,0,0	F2*	H.S. Gentry 7194	Mexico, Sinaloa	F	-,-,-,-,-
Linum decumbens Desf.	EUR	n.a.	162	A. Dubuis s.n.	Algeria	MO 4359542	-,-,-,-,-

Linum elegans Spruner ex Boiss.	EUR	0,0,0,0	163	C. Evrard 10.826	Greece	MO 3919889	-,-,-,-,-
Linum elongatum (Small) Winkler	nNAM	2,2,2,1	253*	J. McDill 30-III-03-3	U.S.A., TX, La Salle Co.	TEX	-,-,-,-,-
Linum erigeroides A.St.-Hil.	eSAM	0,0,1,0	196	Marchesi & Vignale 24-X-1997	Uruguay, Rio Negro	MVFA	-,-,-,-,-
Linum esterhuysenae C.M.Rogers	SAF	0,0,0,1	061	Rogers 13695	South Africa, Western Cape, Swartberg Pass	MO 3671760	-, FJ160822, FJ160779, FJ160863, FJ169549
			SA9*	J. McDill SA9	South Africa, Western Cape, Swartberg Pass	TEX	-,-,-,-,-
			SA10	J. McDill SA10	South Africa, Western Cape, Swartberg Pass	TEX	-,-,-,-,-
Linum flagellare (Small) Winkler	MEX	0,0,0,0/1	042*	Guy Nesom 5359	Mexico, Nuevo Leon	TEX	-,-,-,-,-
Linum flavum L.	EUR	0,0,0,0	149*	C.M. Rogers 13374	Turkey	MO 2372238	-,-,-,-,-
			L57	H. Weber	Romania	MJG R00024	-, FJ160833, FJ160794, FJ160878, FJ169538
Linum floridanum (Planch) Trel. var. *chrysocarpum* Rogers	nNAM	0,1,1,0	124*	Loran C. Anderson 10897	U.S.A., FL, Franklin Co.	MO 3666555	-,-,-,-,-
Linum gracile Planch.	SAF	0,0,0,1	SA4	J. McDill 2005-XII-22.1	South Africa, Western Cape, Montagu Pass	TEX	-,-,-,-,-
			SA5	J. McDill 2005-XII-31.1	South Africa, Western Cape, Tradouw	TEX	-,-,-,-,-

					Pass		
			SA6 *	J. McDill 2006-I-10.1	South Africa, Western Cape, Grootrivier Pass	TEX	-,-,-,-,-
Linum guatemalense Benth.	MEX	0,0,1,0	293*	Proctor 25354		TEX	-,-,-,-,-
Linum heterostylum C.M.Rogers	SAF	0,0,0,1	062	C.M. Rogers 13694	South Africa, Western Cape	MO	-,-,-,-,-
Linum holstii Engl. ex R.Wilczek	TAF	0,0,0,0	139*	LaCroix 3897	Malawi	MO	-,-,-,-,-
Linum hudsonioides Planch.	nNAM	2,2,2,1	032	W.R. Carr 14755	U.S.A., TX, Brown Co.	TEX	-,-,-,-,-
			244	J. McDill 2004-V-7.3	U.S.A., TX, Blanco Co.	TEX	-,-,-,-,-
			250*	Hillis 141	U.S.A., TX, Mason Co.	TEX	-,-,-,-,-
Linum hypericifolium Salisb.	EUR	n.a.	148	M. Merello et al. 2116	Republic of Georgia	MO 04973936	-, FJ160828, FJ160789, FJ160873, -
Linum imbricatum (Raf.) Shinners	nNAM	2,2,2,1	005	W.R. Carr 18038	U.S.A., TX, Brazoria Co.	TEX	-,-,-,-,-
			249*	J. McDill 2002-V-22.1	U.S.A., TX, Travis Co., Brackenridge Field Lab	TEX	-,-,-,-,-
Linum intercursum Bicknell	nNAM	0,1,0,0	401	Rogers 13194	U.S.A., NC, Davidson Co.	WUD	-,-,-,-,-
Linum kingii S. Watson	nNAM	0,0,0,0	123*	M.D. Windham	U.S.A., UT,	MO	-,-,-,-,-

				92-100	Garfield Co.		
			223	J. McDill 021	U.S.A., UT, Salt Lake Co.	TEX	-,-,-,-,-
Linum lasiocarpum Rose	MEX	0,0,0,0	310	Rogers 13455	Mexico, Nuevo Leon	WUD	-,-,-,-,-
Linum lewisii Pursh	nNAM	n.a.	010	B.L. Turner 21-263	U.S.A., TX, Reeves Co.	TEX	-, FJ160839, FJ160800,FJ160884, -
Linum littorale A.St.-Hil.	eSAM	0,0,1,0	089*	R.M. Harley 26923	Brasil, Bahia	MO 04893852	-,-,-,-,-
Linum longipes Rose	MEX	0,0,0,1	038*	Panero 5302	Mexico, Puebla	TEX	-,-,-,-,-
			040	Breedlove 65221	Mexico, Puebla	TEX	-,-,-,-,-
Linum lundellii Rogers	nNAM	2,2,2,1	186*	D.S. Correll 32270	U.S.A., TX, Starr Co.	TEX	-,-,-,-,-
Linum macraei Benth.	wSAM	0,0,0,1	210*	J. McDill 2004-XII-02.1	Chile, Reg. IV Coquimbo	TEX	-,-,-,-,-
Linum marginale A. Cunn.	Australia	n.a.	076	R. Taylor 127	Australia, South Australia	MO 05023280	-, FJ160843, FJ160804, FJ160888, -
Linum maritimum L.	EUR	0,0,0,0	L29*	n.a.	Italy	MJG 040937	-, FJ160850, FJ160811, FJ160895, FJ169535
Linum medium (Planch.) Britton	nNAM	0,0,1,0	001	V.E. McNeilus 98-404	U.S.A., TN, Cumberland Co.	TEX	-,-,-,-,-
			256*	J. McDill 2005-V-11.2	U.S.A., TX, Lee Co., Lake Sommerville	TEX	-,-,-,-,-
			257	JRM 2005-V-11.1	U.S.A., TX, Lee Co., Co. Rd. 309	TEX	-,-,-,-,-
Linum mexicanum HBK	MEX	0,0,0,1	037*	Carmelino Santiz Ruiz 209	Mexico, Chiapas	TEX	-,-,-,-,-
Linum monogynum G. Forst.	Australia	n.a.	224	H. Meudt 245	New Zealand	TEX	-,-,-,-,-

Linum narbonense Desf.	EUR	n.a.	013	C. Ardo et al. 2303	Spain	TEX	-,-,-,-,-
Linum nelsonii Rose	MEX	0,0,0,0	F5	Leavenworth 799	Mexico, Nuevo Leon	F	-,-,-,-,-
Linum neomexicanum Greene	nNAM	0,0,0,0	228*	Springer 3A.6	U.S.A., NM	TEX	-,-,-,-,-
Linum nervosum Waldst. & Kit.	EUR	n.a.	146	n.a.	Russia	MO 4250021	-,-,-,-,-
Linum oligophyllum Willd. ex Schult.	wSAM	0,0,1,0	091*	D.N. Smith et al. 9426	Peru, Ancash	MO 3277219	-, -, FJ160783, FJ160867, FJ169546
Linum orientale Boiss.	EUR	0,0,0,0	143*	n.a.	Russia	MO 3144852	-,-,-,-,-
Linum orizabae Planch.	MEX	0,0,1,1	270 *	Iltis et al. 261	Mexico, Morelos	WUD	-,-,-,-,-
Linum pratense Small	nNAM	n.a.	238	McDill 2005-V-13.1	U.S.A., TX, Montague Co.	TEX	-,-,-,-,-
Linum pringlei S. Watson	MEX	0,0,0,0	201*	Henrickson 24148	Mexico	TEX	-,-,-,-,-
Linum prostratum Domb. ex Lam.	wSAM	0,0,0,0	194*	R. Mildner 52	Peru, Lima	WUD	-, -, FJ160784, FJ160868, FJ169545
Linum puberulum (Engelmann) Heller	nNAM +MEX	2,2,2,1	183	A.M. Powell 1881	U.S.A., TX, Ward Co.	TEX	-,-,-,-,-
Linum quadrifolium Thunb.	SAF	0,0,0,0	258 *	Rogers 13703	South Africa, Western Cape	WUD	-,-,-,-,-
Linum rigidum Pursh.	nNAM	2,2,2,1	035*	W.R. Carr 18225	U.S.A., TX, Randall Co.	TEX	-,-,-,-,-
			400	McDill 2005-V-15.3	U.S.A., TX, Roberts Co.	TEX	-,-,-,-,-
Linum rupestre (A. Gray) Engelmann	nNAM +MEX	0,0,0,0	034	J. Saunders 1343	U.S.A., TX, Travis Co.	TEX	-,-,-,-,-
			036*	B.L. Turner 21-589	U.S.A., TX, Sutton Co.	TEX	-, FJ160824, FJ160785, FJ160869, FJ169553
			242	J. McDill 2004-8	U.S.A., TX, Blanco	TEX	-,-,-,-,-

					Co.		
Linum rzedowskii Arreguin	MEX	n.a.	165	E. Ventura V. 1051	Mexico	MO 3909940	-,-,-,-,-
Linum scabrellum Planch.	MEX	0,0,1,0	F7*	Purpus 4923	Mexico, San Luis Potosi	F	-,-,-,-,-
Linum schiedeanum Schlecht. & Cham.	MEX	0,0,0,0	009*	Alonso Mendez Ton 9708	Mexico, Chiapas	TEX	-,-,-,-,-
Linum scoparium Griseb.	eSAM	0,0,0,0	219*	JRM 2004-XII-12.1	Uruguay, Rivera	TEX	-,-,-,-,-
Linum striatum Walter	nNAM	0,0,1,0	075*	A.W. Cusick 34532	U.S.A., OH, Portage Co.	MO 04881564	-,-,-,-,-
Linum strictum L.	EUR	0,0,0,0	012*	J.L. Panero 6966	Spain, Canary Islands, Tenerife	TEX	-,-,-,-,-
Linum subteres (Trel.) Winkler	nNAM	2,1,1,1	302	Rogers 13244	U.S.A., UT, San Juan Co.	WUD	-,-,-,-,-
Linum suffruticosum L.	EUR	0,0,0,0	011*	C. Navarro et al. CN 2339	Spain	TEX	-, FJ160846, FJ160807, FJ160891, FJ169532
Linum sulcatum Ridell	nNAM	0,1,0,1	132*	Henderson 93-207	U.S.A., MO, Bates Co.	MO 4375070	-,-,-,-,-
Linum tauricum Willd.	EUR	0,0,0,0	157	P. Frost-Olsen 1070	Bulgaria	MO 04642915	-,-,-,-,-
Linum tenellum Schlecht. & Cham.	MEX	0,0,1,0	F6*	Guy Nesom 6260	Mexico, Tamaulipas	F	-,-,-,-,-
Linum tenue Desf.	EUR	0,0,0,0	66*	Maroc 12600	Morocco	MO	-,-,-,-,-
Linum tenuifolium L.	EUR	0,0,0,0	156*	P. Frost-Olsen 2115	Serbia	MO	-,-,-,-,-
			L17	M. Kropf	Germany	MJG 040934	-, FJ160848, FJ160809, FJ160893, FJ169529
Linum thesioides Bartl.	SAF	0,0,0,0	SA17*	Esterhuysen 4456	South Africa, Western Cape	UCT	-,-,-,-,-
Linum thunbergii Eckl. & Zeyh.	SAF	0,0,0,0	067‡	Bourell 2728	South Africa, Transvaal	MO 4389048	-,-,-,-,-

Linum trigynum L.	EUR	0,0,0,0	72*	A.E. Wright 2600	New Zealand	MO 2695749	-,-,-,-,-
Linum usitatissimum L.	EUR	n.a.	L4	n.a.	cultivated	MJG 040924	-, FJ160842, FJ160803, FJ160887, -
Linum vernale Wooton	nNAM	2,1,1,1	184*	Correll & Correll 38582	U.S.A., TX, El Paso Co.	TEX	-, FJ160851, FJ160812, FJ160896, FJ169552
Linum villosum C.M.Rogers	SAF	0,0,0,0	SA14*	Esterhuysen 27360	South Africa, Western Cape	UCT	-,-,-,-,-
Linum virginianum L.	SAF	0,0,1,0	130*	R. Kral 53267	U.S.A., AL, Chilton Co.		-,-,-,-,-
Linum viscosum L.	EUR	n.a.	L41	n.a.		MJG 040939	-, FJ160830, FJ160791, FJ160875, -
Linum volkensii Engl.	TAF	0,0,0,0	137*	Gereau & Kayombo 4662	Tanzania	MO	-, FJ160852, FJ160813, FJ160897, FJ169531
Linum westii Rogers	nNAM	0,1,2,0	269*	S. McDaniel 6560	U.S.A., FL, Jackson Co.		-,-,-,-,-
Linum sp. nov.	nNAM	2,2,2,1	n.a.*	Sivinski 6843	U.S.A., NM, Eddy Co.	TEX	-,-,-,-,-
Radiola linoides Roth.	EUR	3,0,0,0	171*	Egeröd 6935	Sweden, Goteborg	MO 3928062	-,-,-,-,-
Reinwardtia indica Dum.	Southeast Asia	n.a.	044	J. McDill s.n.	Cultivated	TEX	-, FJ160853, FJ160814, FJ160898, -
Sclerolinon digynum (A. Gray) C.M. Rogers	nNAM	3,0,2,0	083	M.S. Taylor 3935	U.S.A., CA, Plumas Co.	MO 3209887	-, FJ160826, FJ160787, FJ160871, FJ169541
			PM1983*	Patterson & Melonghi 1983	U.S.A., CA, Sierra Co.	TEX	-,-,-,-,-

Appendix C: Chloroplast Data Alignment, Chapter 3

*mat*K (1-1154), *trn*K 3' intron (1155-1560),
*ndh*F (1561-1994), trnL-F (1995-2748)

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                          111111111122222222223333333333444444444455555555556666666666777
Taxon/Node       123456789012345678901234567890123456789012345678901234567890123456789012
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001Lstriatum     AATGAAAAAATATAAAAAAA????AGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTT
005Limbricatum   AATGAAAAAATATAAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTT
006Lbahamense    AATGAAAAAATATAAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTT
007Lbahamense    AATGAAAAAATATAAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTT
009Lschiedeanum  AATGAAAAAATATAAAAACTATTTAGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTT
010Llewisii      ------------------------------------------------------------------------
011Lsuffruticosu AATGAAAAAATATAAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTT
012Lstrictum     AATGAAAAAATATAAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTT
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L57Lflavum       ------------------------------------------------------------------------
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PM1983Sdigynum   AATGAAAAAATATAAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTT
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Gyp1YesoHills    AATGAAAAAATATAAAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTT
400Lrigidumrigid AATGAAAAAATATAAAAAAATATTTAGAACTAGATGGATCTCTTAAAAAAAGCTTCCTATACCCACTTATCTT
162Ldecumbens     ------------------------------------------------------------------------
401Lintercursum   ------------------------------------------------------------------------


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                 777777788888888889999999999000000000011111111112222222222333333333344444
Taxon/Node       345678901234567890123456789012345678901234567890123456789012345678901234
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011Lsuffruticosu TCGGGAGTATATTTATATAGTTACTTACGTTCGTGGTTTAAATGGATATGGATCCATTTTTTCAGAAAATGT
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223Lkingii       TCGGGAGTATATTTATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCCATTTTTTCAGAAAATGT
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228Lneomexicanum TCGGGAGTATATTTATATAGTTACTTATGCTCGTGGTTTAAATGGATATGTCTCCATTTTTTCAGAAAATGT
231Lcompactum    TCGGGAGTATATTTATGTAGTTACTTATGCTCGTGGTTTAAATAGATATGGTTCCATTTTTTCAGAAAATGT
232Laustrale     TCGGGAGTATATTTATGTAGTTACTTATGCTCGTGGTTTAAATAGATATGGCTCCATTTTTTCAGAAAATGT
233Laristatum    TCGGGAGTATATTTATGTAGTTACTTATGCTCGTGGTTTAAATAGATATGGCTCCATTTTTTCAGAAAATGT
234Lrigidumberla TCGGGAGTATATTTATGTAGTTACTTATGCTCGTGGTTTAAATAGATATGGTTCCATTTTTTCAGAAAATGT
236Lrigidumberla TCGGGAGTATATTTATGTAGTTACTTATGCTCGTGGTTTAAATAGATATGGTTCCATTTTTTCAGAAAATGT
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268Larenicola    TCGGGAGTATATTTATATAGTTACTTATGCTCGTGGTTTAAATAGATATGGCTCCATTTTTTCAGAAAATGT
269Lwestii       TCGGGAGTATATTTATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCCATTTTTTCAGAAAATGT
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307Lalatum       TCGGGAGTATATTTATGTAGTTCCTTATGCTCGTGGTTTAAATAGATATGGCTCCATTTTTTCAGAAAATGT
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214Lbienne       TCGGGAGTATATTTATATAGTTACTTCTGCTCACGGTTTAACTGAACATGGATCCATTTTTTCGGAAAATTC
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F2Lcruciata      TCGGGAGTATATTTATATAGTTCCTTATGCTCGTGGTTTAAATAGATATGGCTCCATTTTTTCAGAAAATTT
F5Lnelsonii      TCGGGAGTATATTTATATAGTTACTTATGCTCGTGGTTTAAATAGATATGGCTCAATTTTTTCAGAAAATGT
F6Ltenellum      TCGGGAGTATATTTATATAGTTACTTATGCTCGTGGTTTAAATAGATATGGCTCTATTTTTTCAGAAAATGT
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L29Lmaritimum    TCGGGAGTATATTTATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGATCCATTTTTTCGGAACATGT
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L41Lviscosum     TCGGGAGTATATTTATATAGTTACTTATGCTCATGGTTTAAGTGGATATGGATCCATTTTTTCGGAAAATGT
L43Lcatharticum  TCGGGAGTATATTTATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGATCCCTTTTTTCGGAAAATCT
L57Lflavum       ------------------------------------------------------------------------
LPB2Loligophyllu TCGGGAGTATATTTATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCAATTTTTTCAGAAAATGT
PM1983Sdigynum   TCGGGAGTATATTTATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCCATTTTTTCAGAAAATTT
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SA10Lesterhuysen TCGGGAGTATATTTATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCCATTTTTTCAGAAAATGT
SA11LinumAgulhas TCGGGAGTATATTTATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCCATTTTTTCAGAAAATGT
SA12Laethiopicum TCGGGAGTATATTTATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCCATTTTTTCAGAAAATGT
SA13LinumspWindb TCGGGAGTATATTTATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCCATTTTTTCAGAAAATGT
SA14Lvillosum    TCGGGAGTATATTTATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCCATTTTTTCAGAAAATGT
SA17Lthesioides  TCGGGAGTATATTTATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCCATTTTTTTAGAAAATGT
SA19Lcomptonii   TCGGGAGTATATTTATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCCATTTTTTCAGAAAATGT
SA3Lacuticarpum  TCGGGAGTATATTTATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCCATTTTTTCAGAAAATGT
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SA7Linumdehoop   TCGGGAGTATATTTATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCCATTTTTTCAGAAAATGT
SA8Ladustum      TCGGGAGTATATTTATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCCATTTTTTCAGAAAATGT
SA9Lesterhuysena TCGGGAGTATATTTATATAGTTACTTATGCTCGTGGTTTAAATGGATATGGCTCCATTTTTTCAGAAAATGT
SD1Lrigidumcompa TCGGGAGTATATTTATGTAGTTACTTATGCTCGTGGTTTAAATAGATATGGCTCCATTTTTTCAGAAAATGT
Gyp1YesoHills    TCGGGAGTATATTTATGTAGTTACTTATGCTCGTGGTTTAAATAGATATGGCTCCATTTTTTCAGAAAATGT
400Lrigidumrigid TCGGGAGTATATTTATGTAGTTACTTATGCTCGTGGTTTAAATAGATATGGCTCCATTTTTTCAGAAAATGT
162Ldecumbens    ------------------------------------------------------------------------
401Lintercursum  ------------------------------------------------------------------------


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                 444445555555555666666666677777777778888888888999999999900000000001111111
Taxon/Node       567890123456789012345678901234567890123456789012345678901234567890123456
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001Lstriatum     AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
005Limbricatum   AGGTTGTGACAATAAATCTAGTTTATTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
006Lbahamense    AGGTTGTGACAATAAATCTAGTTTATTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
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009Lschiedeanum  AGGTTGTGACAATAAATCGAGTTTATTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
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011Lsuffruticosu AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
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022Hclevelandii  AGGTTGTGACAAGAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
025Hdisjunctum   AGGTTGTGACAAGAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
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028Lberlandierif AGGTTGTGACAATAAATCTAGTTTATTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
032Lhudsonioides AGGTTGTGACAATAAATCTAGTTTATTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
034Lrupestre     AGGTTGTGACAATAAATCTAGTTTATTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
035Lrigidumrigid AGGTTGTGACAATAAATCTAGTTTATTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
036Lrupestre     AGGTTGTGACAATAAATCTAGTTTATTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
037Lmexicanum    AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
038Llongipes     AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
040Lcruciata     AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
041Laristatum    AGGTTGTGACAATAAATCTAGTTTATTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
042Lflagellare   AGGTTGTGACAATAAATCTAGTTTATTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
044Reinwardtiain AGGTTATGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
047Hdrymarioides AGGTTGTGACAAGAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
048Hmicranthum   AGGTTGTGACAAGAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
049Cselaginoides AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
055Laethiopicum  AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
059Lcomptonii    AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
061Lesterhuysena AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
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062Lheterostylum ------------------------------------------------------------------------
067Lthunbergii   ------------------------------------------------------------------------
072Ltrigynum     AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTGATTACT------------AGAATGAATCA
075Lstriatum     AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
076Lmarginale    CTCTTATCACGATAAATCGAGTTTACTAATTATAAAACGCTTAATTACT------------CGAATGAATCA
083Sdigynum      AGGTTGTGACACGAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
089Llittorale    AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
091Loligophyllum AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
123Lkingii       AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACTCGTTTAATTACTCGAATGAATCA
124Lfloridanum   AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
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132Lsulcatum     AGGTTGTGACAATAAATCTAGTTTATTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
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137Lvolkensii    AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
139Lholstii      AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
143Lorientale    GGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
146Lnervosum     AGGTTATGACAATAAATTGAGTTTACTAATTATAAAACGTTTAATTACT------------CGAATGAATCA
148Lhypericifoli AGGTTATGACAATAAATCGAGTTTACTAATTATAAAACGTTTAATTACT------------CGAATGAATCA
149Lflavum       GGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
151Lcatharticum  AGGTTGTGATAGTAAATCTAGTTTACTAATTGTAAAGCGTTTAATTACT------------CGAATGAATCA
156Ltenuifolium  AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
157Ltauricum     GGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
163Lelegans      GGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
164Larboreum     GGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
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171Rlinoides     AGGTTATGATAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
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184Lvernale      AGGTTGTGATAATAAATCTAGTTTATTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
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193Lbrevifolium  AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
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195Lchamissonis  AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
196Lerigeroides  --------------------------------------------------------------GAA-GAATCA
200Lcarneum      AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
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215Lchamissonis  AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
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244Lhudsonioides AGGTTGTGACAATAAATCTAGTTTATTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
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L41Lviscosum     AGGTTATGACAATAAATCGAGTTTACTAATTATAAAACGTTTAATTACT------------CGAATGAATCA
L43Lcatharticum  AGGTTGTGATAGTAAATCTAGTTTACTAATTGTAAAGCGTTTAATTACT------------CGAATGAATCA
L57Lflavum       ------------------------------------------------------------------------
LPB2Loligophyllu AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
PM1983Sdigynum   AGGTTGTGACACGAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
SA1Lafricanum    AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
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SA9Lesterhuysena AGGTTGTGACAATAAATCTAGTTTACTAATTGTAAAACGTTTAATTACT------------CGAATGAATCA
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162Ldecumbens    ------------------------------------------------------------------------
401Lintercursum  ------------------------------------------------------------------------


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025Hdisjunctum   ACCGAATCATTTCATTATTTCGGCTACTGATTCTGAACAGCATATACTTTTTAGGTATAACAACATTTTGTA
027Lberlandierib ACCGAATCATTTCATTATTTCGGCTACTGATTCTGAACAACATATACTTTTTAGGTATAACAACATTTTGTA
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032Lhudsonioides ACCGAATCATTTCATTATTTCGGCTACTGATTCTGAACAACATATACTTTTTAGGTATAACAACATTTTATA
034Lrupestre     ACCGAATCATTTCATTATTTCGGCTACTGATTCTGAACAACATATACTTTTTAGGTATAACAACATTTTGTA
035Lrigidumrigid ACCGAATCATTTCATTATTTCGGCTACTGATTCTGAACAACATATACTTTTTAGGTATAACAACATTTTGTA
036Lrupestre     ACCGAATCATTTCATTATTTCGGCTACTGATTCTGAACAACATATACTTTTTAGGTATAACAACATTTTGTA
037Lmexicanum    ACCGAATCATTTCATTATTTCGGCTACTGATTCTGAACAACATATACTTTTTAGGTATAACAACATTTTGTA
038Llongipes     ACCGAATCATTTCATTATTTCGGCTACTGATTCTGAACAACATATACTTTTTAGGTATAACAACATTTTGTA
040Lcruciata     ACCGAATCATTTCATTATTTCGGCTACTGATTCTGAACAACATATACTTTTTAGGTATAACAACATTTTGTA
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042Lflagellare   ACCGAATCATTTCATTATTTCGGCTACTGATTCTGAACAACATATACTTTTTAGGTATAACAACATTTTGTA
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055Laethiopicum  ACCGAATCATTTCATTATTTCGGCTACTGATTCTGAACAACATATACTTTTTAGGTATAACAACATTTTGTA
059Lcomptonii    ACCGAATCATTTCATTATTTCGGCTACTGATTCTGAACAACATATACTTTTTAGGTATAACAACATTTTGTA
061Lesterhuysena ACCGAATCATTTCATTATTTCGGCTACTGATTCTGAACAACATATACTTTTTAGGTATAACAACATTTTGTA
066Ltenue        ACCGAATCATTTCATTATTTCGGCTACTGATTCTGAACAACATATACTTTTTAGGTATAACAACATTTTGTA
062Lheterostylum ------------------------------------------------------------------------
067Lthunbergii   ------------------------------------------------------------------------
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075Lstriatum     ACCGAATCATTTCATTATTTCGGCTACTGATTCTGAACAACATATACTTTTTCGGTATAACAACATTTTGTA
076Lmarginale    GCCGAATCAGTTCCCAATTTTGGCTTCTGATTCTGAACAACATATATTTTTTAGGTATAACAACATTTTGTA
083Sdigynum      ACCGAATCATTTCATTATTTCGGCTACTGATTCTGAACAACATATACTTTTTAGGTATAACACCATTTTGTA
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091Loligophyllum ACCGAATCATTTCATTATTTCGGCTACTGATTCTGAACAACATATACTTTTTAGGTATAACAACATTTTGTA
123Lkingii       ACCGAATCATTTCATTATTTCGGCTACTGATTCTGAACAACATCTACTTTTTAGGTATAACAACATTTTGTA
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187Lcremnophyllu ACCGACTCATTTCATTATTTCGGCTACTGATTCTGAACAACATATACTTTTTAGGTATAACAACATTTTGTA
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310Llasiocarpum  ACCGAATCATTTCATTATTTCGGCTATTGATTCTGAACAACATATACTTTTTAGGTATAACAACATTTTGTA
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L4Lusitatissimum GCCGAATCAGTTCCAAATTTTGGCTTCAGATTCTGAACAACATATATTTTTTAGGTATAACAACATTTTGTA
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L43Lcatharticum  ACCGAATCATTTCATTGTTTCGCATACTGATTCTGAACAACATATACTTTTTAGGTATAACAAGATTTTGTA
L57Lflavum       ------------------------------------------------------------------------
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PM1983Sdigynum   ACCGAATCATTTCATTATTTCGGCTACTGATTCTGAACAACATATACTTTTTAGGTATAACACCATTTTGTA
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SA11LinumAgulhas ACCGAATCATTTCATTATTTCGGCTACTGATTCTGAACAACATATACTTTTTAGGTATAACAACATTTTGTA
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SA13LinumspWindb ACCGAATCATTTCATTATTTCGGCTACTGATTCTGAACAACATATACTTTTTAGGTATAACAACATTTTGTA
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Gyp1YesoHills    ACCGAATCATTTCATTATTTCGGCTACTGATTCTGAACAACATATACTTTTTAGGTATAACAACATTTTGTA
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162Ldecumbens    ------------------------------------------------------------------------
401Lintercursum  ------------------------------------------------------------------------


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Taxon/Node       901234567890123456789012345678901234567890123456789012345678901234567890
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206Cselaginoides TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCGGCTTT
210bLmacraeimacr TTCTCAAATGGTATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCGGCTTT
215Lchamissonis  TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCGGCTTT
219Lscoparium    TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCGGCTTT
220Cselaginoides TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCGGCTTT
221Lburkartii    TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCGGCTTT
223Lkingii       TTCTCAAATGATATCAGCGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCCCATTT
224Lmonogynum    TTCTCAAATGATATCAGCGGGACTTGGAACCATTATAGAAATTCCATTTTCTCTACGCTTAGTATCTTCTTT
228Lneomexicanum TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCCCATTT
231Lcompactum    TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGGATCTGCTTT
232Laustrale     TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTCCGATTAGGATCCGCTTT
233Laristatum    TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGGATCTGCTTT
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241Lrigidumberla TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGGATCTGCTTT
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307Lalatum       TTCTCAAATGATATCAGAGGGACTTGCCGTTATTATCGAAATTCCATTTTCTCTACGATTAGGATCCGCTTT
310Llasiocarpum  TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCCGCTTT
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244Lhudsonioides TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCCGCTTT
214Lbienne       TTCTCAAATGGTATCAGCGGGACTTGGAACCATTATAGAAATTCCATTTTCTCTACGATTAGTATCTTCTTT
249LinumBrackenr TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCCGCTTT
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F2Lcruciata      TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCCGCTTT
F5Lnelsonii      TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCCGCTTT
F6Ltenellum      TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCCGCTTT
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L29Lmaritimum    CTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCCGCTTT
L4Lusitatissimum TTCTCAAATGGTATCAGCGGGACTTGGAACCATTATAGAAATTCCATTTTCTCTACGATTAGTATCTTCTTT
L41Lviscosum     TTCTCAAATGATATCAGCGGGACTTGCAGCCATTATCGAAATTCCATTTTCTCTACGATTAGTATCCTCTTT
L43Lcatharticum  TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCGTTTTCTTTACGATTAGTATCCGCTTT
L57Lflavum       ------------------------------------------------------------------------
LPB2Loligophyllu TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCGGCTTT
PM1983Sdigynum   TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCCGCTTT
SA1Lafricanum    TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCCGCTTT
SA10Lesterhuysen TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCCGCTTT
SA11LinumAgulhas TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCCGCTTT
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SA17Lthesioides  TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCCGCTTT
SA19Lcomptonii   TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCCGCTTT
SA3Lacuticarpum  TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCCGCTTT
SA4Lgracile      TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCCGCTTT
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SA7Linumdehoop   TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCCGCTTT
SA8Ladustum      TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGTATCCGCTTT
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SD1Lrigidumcompa TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGGATCTGCTTT
Gyp1YesoHills    TTCTCAAATGATATCAGAGGGACTTGCAGTTATTATCGAAATTCCATTTTCTCTACGATTAGGATCTGCTTT
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162Ldecumbens     ------------------------------------------------------------------------
401Lintercursum  ------------------------------------------------------------------------


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                 666666666777777777788888888889999999999000000000011111111112222222222333
Taxon/Node       123456789012345678901234567890123456789012345678901234567890123456789012
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005Limbricatum   AGAAAGGTTAGAAGTAGTCAAATCACAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
006Lbahamense    AGAAAGTTTAGAAGTAGTCAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
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009Lschiedeanum  AGAAAGGTTAGAAGTAGTCAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
010Llewisii      CGAAAGGTTACATATAGTAAAATCTCAAAATTTAAGATCAATTCATTCAATATTTCCTTTTTTAGAGGATAA
011Lsuffruticosu AGAAAGGCTAGAAGTAGTCAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
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022Hclevelandii  AGAAAGGTTAGAAGTAGTAAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
025Hdisjunctum   AGAAAGGTTAGAAGTAGTAAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
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034Lrupestre     AGAAAGGTTAGAAGTAGTCAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
035Lrigidumrigid AGAAAGGTTAGAAGTAGTCAAATCACAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
036Lrupestre     AGAAAGGTTAGAAGTAGTCAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
037Lmexicanum    AGAAAGGTTAGAAGTAGTAAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
038Llongipes     AGAAAGGTTAGAAGTAGTAAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
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041Laristatum    AGAAAGGTTAGAAGTAGTCAAATCACAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
042Lflagellare   AGAAAGGTTAGAAGTAGTCAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
044Reinwardtiain AGAAAGGTTAGAAATAGTAAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
047Hdrymarioides AGAAAGGTTAGAAGTAGTAAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
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048Hmicranthum   AGAAAGGTTAGAAGTAGTAAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
049Cselaginoides AGAAAGGTTAGAAGTAGTAAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
055Laethiopicum  AGAAAGGTTAGAAGTAGTCAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
059Lcomptonii    AGAAAGGTTAGAAGTAGTCAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
061Lesterhuysena AGAAAGGTTAGAAGTAGTCAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
066Ltenue        AGAAAGGTTAGAAGTAGTCAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
062Lheterostylum ------------------------------------------------------------------------
067Lthunbergii   ------------------------------------------------------------------------
072Ltrigynum     AGAAAGGTTAGAAGTAGTCAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
075Lstriatum     AGAAAGGTTAGAAGTAGTCAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
076Lmarginale    CAAAAAGTTACAAATAGTCAAATCCCAAAATTTACGATCAATTCATTCACTATTTCCTTTTTTAGAAGATAA
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091Loligophyllum AGAAAAGTTAGAAGTAGTAAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
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124Lfloridanum   AGAAAGGTTAGAAGTAGTCAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
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148Lhypericifoli AGAAAGGTTAGAAATAGTCAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGATAA
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223Lkingii       AGAAAGGTTAGAAGTAGTCAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
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266Lcarteri      AGAAAGGTTAGAAGTAGTCAAATCACAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
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L41Lviscosum     AGAAAGG-TAGAAATAGTCAAATCCCAAAATTTACGATCAGTTCATTCAATATTTCCTTTTTTAGAGGATAA
L43Lcatharticum  AGAAAGCTTAGAAGTAGTCAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
L57Lflavum       ------------------------------------------------------------------------
LPB2Loligophyllu AGAAAAGTTAGAAGTAGTCAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
PM1983Sdigynum   AGAAAGGTTCGAAGTAGTAAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
SA1Lafricanum    AGAAAGGTTAGAAGTAGTCAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
SA10Lesterhuysen AGAAAGGTTAGAAGTAGTCAAATCCCAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
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SD1Lrigidumcompa AGAAAGGTTAGAAGTAGTCAAATCACAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
Gyp1YesoHills    AGAAAGGTTAGAAGTAGTCAAATCACAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
400Lrigidumrigid AGAAAGGTTAGAAGTAGTCAAATCACAAAATTTACGATCAATTCATTCAATATTTCCTTTTTTAGAGGACAA
162Ldecumbens     ------------------------------------------------------------------------
401Lintercursum  ------------------------------------------------------------------------


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                 333333344444444445555555555666666666677777777778888888888999999999900000
Taxon/Node       345678901234567890123456789012345678901234567890123456789012345678901234
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005Limbricatum   ATTTCCACATTTAAATTATGTGTCAACTGGACTAATACCTTACCCCATCCATCTAGAAAAGTTGGTTCAAGC
006Lbahamense    ATTGCCACATTTAAATTATGTGTCAACTGGACTAATACCTTACCCCATCCATCTAGAAAAGTTGGTTCAAGC
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009Lschiedeanum  ATTTCCACATTTAAATTATGTGTCAACTGGACTAATACCTTACCCCATCCATCTAGAAAAGTTGGTTCAAGC
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011Lsuffruticosu ATTTCCACATTTAAATTATGTGTCAACTGGACTAATACCTTACCCCATCCATCTAGAAAAGTTGGTTCAAGC
012Lstrictum     ATTTCCACATTTAAATTATGTGTCAACTGGACTAATACCTTACCCCATCCATCTAGAAAAGTTGGTTCAAGC
013Lnarbonense   ATTGACACACTTAAATTATGTGTCAACTGGGCTAATACCTTACCCTATCCACCTAGAAAAATTGGTTCAAGC
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025Hdisjunctum   ATTTCCACATTTAAATTATGTGTCAACTGGACTAATACCTTACCCCATCCATCTAGAAAAGTTGGTTCAAGC
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035Lrigidumrigid ATTTCCACATTTAAATTATGTGTCAACTGGACTAATACCTTACCCCATCCATCTAGAAAAGTTGGTTCAAGC
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038Llongipes     ATTTCCACATTTAAATTATGTGTCAACTGGACTAATACCTTACCCCATCCATCTAGAAAAGTTGGTTCAAGC
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062Lheterostylum ------------------------------------------------------------------------
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089Llittorale    ATTTCCACATTTAAATTATGTGTCAACTGGACTAATACCTTACCCCATCCATCTAGAAAAGTTGGTTCAAGC
091Loligophyllum ATTTCCACATTTAAATTATGTGTCAACTGGACTAATACCTTACCCCATCCATATAGAAAAGTTGGTTCAAGC
123Lkingii       ATTTCCACATTTAAATTATGTGGCAACTGGACTAATACCTTACCCCATCCATCTAGAAAAGTTGGTTCAAGC
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SA14Lvillosum    ATTTCCACATTTAAATTATGTGTCAAC---------------------------------------------
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Gyp1YesoHills    ATTTCCACATTTAAATTATGTGTCAACTGGACTAATACCTTACCCCATCCATCTAGAAAAGTTGGTTCAAGC
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162Ldecumbens    ------------------------------------------------------------------------
401Lintercursum  ------------------------------------------------------------------------


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Taxon/Node       567890123456789012345678901234567890123456789012345678901234567890123456
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011Lsuffruticosu CATTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
012Lstrictum     CATTCGCTTATGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAAT--
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032Lhudsonioides CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTACATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
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035Lrigidumrigid CACTCGTTTCTGGATAAA------------------------------------------------------
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047Hdrymarioides CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAAT--
048Hmicranthum   CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAAT--
049Cselaginoides CACTCGCTTCTGGATAA-------------------------------------------------------
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067Lthunbergii   ------------------------------------------------------------------------
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075Lstriatum     CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
076Lmarginale    CGTTCGCTTCTGGATAA??????????TTGTTTGCATTTATTACGACTTTTTTTTCACGAGTATTGGCGTTC
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089Llittorale    CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
091Loligophyllum CACTCGCTTATGGATA??????????CTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
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187Lcremnophyllu CACTCGCTTATGGATAA?????????CTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
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194Lprostratum   CACTCGCTTATGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
195Lchamissonis  CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGT------ATTG
196Lerigeroides  CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
200Lcarneum      CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
201Lpringlei     CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
206Cselaginoides CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
210bLmacraeimacr CACTCGCTTATGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
215Lchamissonis  CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGT------ATTG
219Lscoparium    CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
220Cselaginoides CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
221Lburkartii    CACTCGCTTCTGGATAAAAGATCCCGCTTATTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
223Lkingii       CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
224Lmonogynum    CGTTCGCTTCTGGATAAAAGATACCGCGTGTTTGCATTTATTACGACTTTTTTTTCACGAGTATTGGCGTTC
228Lneomexicanum CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
231Lcompactum    CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
232Laustrale     CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
233Laristatum    CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
234Lrigidumberla CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
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236Lrigidumberla CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
238Lpratense     ----------------------------------------------------------GAGTATTCGAATTG
241Lrigidumberla CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
242Lrupestre     CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
246LrigidumKerr  CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
253Lelongatum    CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
256Lmedium       CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
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269Lwestii       CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAAT--
270Lorizabae     CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
291Lrigidumfilif CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
293Lquatemalense CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
294Lcatharticum  CATTCGCTTCTGGATAAAAGATCCCGCTTGTTTACATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
302Lsubteres     CACTCGTTTCTGGA----------------------------------------------------------
307Lalatum       CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
310Llasiocarpum  CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
244Lhudsonioides CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTACATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
214Lbienne       CGTTCGCTTCTGGATAAAGGATACCGCGTGTTTGCATTTATTACGACTTTTTTTTCACGAGTATTGGGGTTG
249LinumBrackenr CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
250Lhudsonioides CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTACATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
A1Lrigidumpuberu CACTCGTTTCTGGATA--------------------------------------------------------
F1Lbahamensecora CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
F2Lcruciata      CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
F5Lnelsonii      CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCGTTTTTCACGAGTATTGGAATTG
F6Ltenellum      CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
F7Lscabrellum    CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
L17Ltenuifolium  CATTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
L29Lmaritimum    CATTCGCTTCTGGATAAAAGACCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
L4Lusitatissimum CGTTCGCTTCTGGA???????????????GTTTGCATTTATTACGACTCTGTTTTCACGAGTATTGGAATTG
L41Lviscosum     ------------------------------------------------------------------------
L43Lcatharticum  CATTCGCTTCTGGATAAAAGATCCCGCTTGTTTACATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
L57Lflavum       ----------------------------TGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
LPB2Loligophyllu CACTCGCTTATGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
PM1983Sdigynum   CACTCGCTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
SA1Lafricanum    CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
SA10Lesterhuysen CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
SA11LinumAgulhas CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
SA12Laethiopicum CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
SA13LinumspWindb CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
SA14Lvillosum    ---------------------------------------------------------CGAGTATTGGAATTG
SA17Lthesioides  CACTCGTTTCTGGATAAAGGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
SA19Lcomptonii   CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
SA3Lacuticarpum  CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
SA4Lgracile      CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
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SA8Ladustum      CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
SA9Lesterhuysena CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
SD1Lrigidumcompa CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTGCGACTCTTTTTTCACGAGTATTGGAATTG
Gyp1YesoHills    CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTACGACTCTTTTTTCACGAGTATTGGAATTG
400Lrigidumrigid CACTCGTTTCTGGATAAAAGATCCCGCTTGTTTGCATTTATTGCGACTCTTTTTTCACGAGTATTGGAATTG
162Ldecumbens    --------------GAAAAGATCCCGCTTGTTTGCATTTATTACGACTTTTTTTTC-CGAGTATTGGAGTTC
401Lintercursum  ---------------------------------------------------------CGAGTATTGGAATTG


                 555555555555555555555556666666666666666666666666666666666666666666666666
                 777888888888899999999990000000000111111111122222222223333333333444444444
Taxon/Node       789012345678901234567890123456789012345678901234567890123456789012345678
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001Lstriatum     GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTCTA
005Limbricatum   GAATAGTCTTTTTTTTTCGAAGCAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
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007Lbahamense    GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
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009Lschiedeanum  GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATTCAAGATTCTTCTTGTTCTTATATAATTTATA
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012Lstrictum     ----AATCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATATATA
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022Hclevelandii  ----AGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTCTA
025Hdisjunctum   ----AGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTCTA
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032Lhudsonioides GAATAGTCTTTTTTTTTCGAAGAAATTTCCAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
034Lrupestre     GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
035Lrigidumrigid ------------------------------AAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
036Lrupestre     GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
037Lmexicanum    GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
038Llongipes     GAATAGTCTTTTTTTTTCGAAAAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
040Lcruciata     GAATAGTCTTTTTTTTTCGAAAAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
041Laristatum    GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
042Lflagellare   GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
044Reinwardtiain GAACAGTCTTTTTATTTCGAAGAAATTTCTAAAAAGGAACCCAAGATTCTTCTTGTTCTTATATAATTTATA
047Hdrymarioides ----AGTCTTTTTTTTTCGAAGAAATTTTGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
048Hmicranthum   ----AGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTCTA
049Cselaginoides ----------TTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
055Laethiopicum  GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
059Lcomptonii    GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
061Lesterhuysena GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
066Ltenue        GAACAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
062Lheterostylum ------------------------------------------------------------------------
067Lthunbergii   ------------------------------------------------------------------------
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075Lstriatum     GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTCTA
076Lmarginale    GAAGAGTCAATTTATTTCGAATAATTTTTTAAAAAGAAATACAAGACTTTTATTGGTTTTATATAATATATA
083Sdigynum      GAATAGTCTTGTTTTTTCGAAGAAATTTCGAAAAAGGAACCCAAGATTCTTCTTGTTCTTATATAATTTATA
089Llittorale    GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
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124Lfloridanum   GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTCTA
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148Lhypericifoli GAACAGTCTTTTTATTTCGAACAAGTTTATAAAAAGGAATCCAAGACTCTTATTGTTTTTATATAATTTATA
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165Lrzedowskii   -------------------------------------------------------------------TTATA
171Rlinoides     GAACAGTCTTTTTGTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTGTTGTTGTTCTTATATAATTTATA
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206Cselaginoides GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
210bLmacraeimacr GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTTTTGTTCTTATATAATTTCTA
215Lchamissonis  GAATAGTCTGTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTCTA
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220Cselaginoides GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
221Lburkartii    GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTCTA
223Lkingii       GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
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224Lmonogynum    GAAGAGTCAATTTATTTCGAATAATTTTTTAAAAAGAAATACAAGACTTTATTGGTTTTATATAATATATA
228Lneomexicanum GAATACTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
231Lcompactum    GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
232Laustrale     GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
233Laristatum    GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
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294Lcatharticum  GAACAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
302Lsubteres     ------------------------------------------------------------------------
307Lalatum       GAATAGTCTTTTTTTTTCGAAGCAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
310Llasiocarpum  GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATTCAAGATTCTTCTTGTTCTTATATAATTTATA
244Lhudsonioides GAATAGTCTTTTTTTTTCGAAGAAATTTCCAAAAAGGAATCCAAGATTTTTCTTGTTCTTATATAATTTATA
214Lbienne       GAAGAGTCAAATTTTTTCGACTAATTTTTTAAAAAGGAATACAAGACTTTATTGGTTTTATATAATATATA
249LinumBrackenr GAATAGTCTTTTTTTTTCGAAGCAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
250Lhudsonioides GAATAGTCTTTTTTTTTCGAAGAAATTTCCAAAAAGGAATCCAAGATTTTTCTTGTTCTTATATAATTTATA
A1Lrigidumpuberu ------------------------------AAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
F1Lbahamensecora GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
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L29Lmaritimum    GAACAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
L4Lusitatissimum GAACAGTCTTTTTATTTCGAACAAGTTTATAAAAAGGAATCCAAGACTCTTATTGTTTTTATATAATTTATA
L41Lviscosum     ------------------------------------------------------------------------
L43Lcatharticum  GAACAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
L57Lflavum       GAACAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
LPB2Loligophyllu GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATTCAAGATTCTTCTTGTTCTTATATAATTTCTA
PM1983Sdigynum   GAATAGTCTTGTTTTTTCGAAGAAATTTCGAAAAAGGAACCCAAGATTCTTCTTGTTCTTATATAATTTATA
SA1Lafricanum    GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
SA10Lesterhuysen GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
SA11LinumAgulhas GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
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SA3Lacuticarpum  GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
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SA7Linumdehoop   GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
SA8Ladustum      GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
SA9Lesterhuysena GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
SD1Lrigidumcompa GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
Gyp1YesoHills    GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
400Lrigidumrigid GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTATA
162Ldecumbens     TAAGAGTCGATTTATTTCGAATAAAAATTTAAAAAGGAATCCAAGACTTTTTTTGTTTTATATAATATATA
401Lintercursum  GAATAGTCTTTTTTTTTCGAAGAAATTTCGAAAAAGGAATCCAAGATTCTTCTTGTTCTTATATAATTTCTA
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                  666666666666666666666666666666666666666666666666666777777777777777777777
                  455555555556666666666777777777788888888889999999999000000000011111111112
Taxon/Node        901234567890123456789012345678901234567890123456789012345678901234567890
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001Lstriatum      TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
005Limbricatum    TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
006Lbahamense     TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
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009Lschiedeanum   TATATATGAAAACGAATACATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
010Llewisii       TATATATGAAAATGAATCCATTTTATTTTTTCTTCGTAACCAAGTTTTTTATTTACGATCAACCTTTTCTAG
011Lsuffruticosu  TATATATGAAAATGAATCCATCTTATTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
012Lstrictum      TATATATGAAAACGAATCAATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
013Lnarbonense    TATATATGAAAATGAATCCATCTTATTTTTTATTCGTAACCAAGTTTTTTATTTACGATCAACCTTTTCTAG
022Hclevelandii   TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
025Hdisjunctum    TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
027Lberlandierib  TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCGCTTTTTATCA
028Lberlandierif  TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCGCTTTTTATCA
032Lhudsonioides  TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
034Lrupestre      TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
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038Llongipes      TATATATGAAAACGAATCCATCCTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
040Lcruciata      TATATATGAAAACGAATCCATCCTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
041Laristatum     TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
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044Reinwardtiain  TGTATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCAACCTTTTCTCG
047Hdrymarioides  TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
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055Laethiopicum   TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
059Lcomptonii     TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
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066Ltenue         TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
062Lheterostylum  ------------------------------------------------------------------------
067Lthunbergii    ------------------------------------------------------------------------
072Ltrigynum      TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
075Lstriatum      TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
076Lmarginale     TATATATGAAAATGAATCCATCTTATTTTTTCTTCGTAACCAAGTTTTTTATTTACGATCAACCTTTTCTAG
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089Llittorale     TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
091Loligophyllum  TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
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143Lorientale     TATATATGAAAACGAATCCATCCTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
146Lnervosum      TATATATGAAAATGAATCCATCTTATTTTTTCTTCGTAACCAAGTTTTTTATTTACGATCAACCTTTTCTAG
148Lhypericifoli  TATATATGAAAATGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTTATTTACGATCAACCTTTTCTCG
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183Lpuberulum     TATATATGAAAACGAAGCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
184Lvernale       TATATATGAAAACGAAGCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
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200Lcarneum       TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
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221Lburkartii     TATATATGAAAACGAATCCATTTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
223Lkingii        TATATATGAAAACGAATGCATCTTATTTTT-CTTCGTAACCAA-----------------------------
224Lmonogynum     TATATATGAAAATGAATCCATCTTATTTTTTCTTCGTAACCAAGTTTTTATTTACGATCAACCTTTTCTAG
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231Lcompactum     TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCGCTTTTTATCA
232Laustrale      TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
233Laristatum     TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
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253Lelongatum     TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCGCTTTTTATCA
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266Lcarteri       TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCGCTTTTTATCA
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293Lquatemalense  TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
294Lcatharticum   TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
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310Llasiocarpum   TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTT------
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214Lbienne        TATATATGAAAATGAATCCATCTTATTTTTTCTTCGTAACCAAGTTTTTATTTACGATCAACCTTTTCTAG
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250Lhudsonioides  TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
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F1Lbahamensecora  TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
F2Lcruciata       TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
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F6Ltenellum       TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
F7Lscabrellum     TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
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L29Lmaritimum     TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
L4Lusitatissimum  TATATATGAAAATGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTTATTTACGATCAACCTTTTCTCG
L41Lviscosum      ----------------------------------------------------------------TTTTCTCG
L43Lcatharticum   TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
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SA10Lesterhuysen  TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
SA11LinumAgulhas  TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
SA12Laethiopicum  TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
SA13LinumspWindb  TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
SA14Lvillosum     TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
SA17Lthesioides   TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
SA19Lcomptonii    TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCAC---------
SA3Lacuticarpum   TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
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SA9Lesterhuysena  TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
SD1Lrigidumcompa  TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
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Gyp1YesoHills    TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
400Lrigidumrigid TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA
162Ldecumbens     TATATATGAAAATGAGTCCATCTTTTTTTTTCTTCGTAACCAAGTTTTTATTTCCGATCAACCTTTTATAG
401Lintercursum   TATATATGAAAACGAATCCATCTTCTTTTTTCTTCGTAACCAATCTTTTCATTTACGATCCACTTTTTATCA


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                 222222222333333333344444444445555555555666666666677777777778888888888999
Taxon/Node       123456789012345678901234567890123456789012345678901234567890123456789012
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036Lrupestre     GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG
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061Lesterhuysena GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG
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062Lheterostylum ------------------------------------------------------------------------
067Lthunbergii   ------------------------------------------------------------------------
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075Lstriatum     GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG
076Lmarginale    CTTCTTTCTTGAGCGAAATTTGTTCTATGGGAAAAGTGAACAGTTTGCAGAAGTCTTTACTAATTTTTTGAG
083Sdigynum      GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCA
089Llittorale    GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG
091Loligophyllum GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG
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137Lvolkensii    GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAGTTTGCGGAAGTCTTTGCTAATTGTTTTTG
139Lholstii      GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAGTTTGCGGAAGTCTTTGCTAATTGTTTTTG
143Lorientale    GTTCCTTCTTGAACGAAAGTATTTCTATGGAAAAATAGAACAGTTTGCGGAAGTGTTTGCTAATTGTTTTCG
146Lnervosum     CTTCCTTCTTGAGCGAAATTTTTTCTATGGAAAAATAGAACAGTTTGCAGAAGTCTTTGATAATTGTTTTGG
148Lhypericifoli GTTCCTTCTTGAGCGAAATTTTTTCTATGGAAAAATAGAACAGTTTGCGGAAGTCTTTGCTAATTGTTTTCG
149Lflavum       GTTCCTTCTTGAACGAAAGTATTTCTATGGAAAAATAGAACAGTTTGCAGAAGTGTTTGCTAATTGTTTTCG
151Lcatharticum  GTTTCTTCTTGAGCGAAAGTTTTTCTATGGAAAAATAGAACAGTTTGCAGAAGTCTTTGCTAATTGTTTTCG
156Ltenuifolium  GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAGTTTGCGGAAGTCTTTGCTAATTGTTTTCG
157Ltauricum     GTTCCTTCTTGAACGAAAGTATTTCTATGGAAAAATAGAACAGTTTGCGGAAGTGTTTGCTAATTGTTTTCG
163Lelegans      GTTCCTTCTTGAACGAAAGTATTTCTATGGAAAAATAGAACAGTTTGCGGAAGTGTTTGCTAATTGTTTTCG
164Larboreum     GTTCCTTCTTGAACGAAAGTATTTCTATGGAAAAATAGAACAGTTTGCGGAAGTGTTTGCTAATTGTTTTCG
165Lrzedowskii   GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG
171Rlinoides     GTTCCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAGTTTGCGGAAGTCTTTGCTAATTGTTTTCG
183Lpuberulum    GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG
184Lvernale      GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG
186Llundellii    GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCC
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187Lcremnophyllu GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG
193Lbrevifolium  GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG
194Lprostratum   GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG
195Lchamissonis  GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG
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210bLmacraeimacr GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG
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221Lburkartii    GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG
223Lkingii       ------------------------------------------------------------------------
224Lmonogynum    CTTCTTTCTTGAGCGAAATTTGTTCTATGGGAAAAGTGAACAGTTTGCAGAAGTCTTTACTAATTTTTTGGG
228Lneomexicanum GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCA
231Lcompactum    GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCC
232Laustrale     GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG
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253Lelongatum    GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCC
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302Lsubteres     ------------------------------------------------------------------------
307Lalatum       GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG
310Llasiocarpum  ------------------------------------------------------------------------
244Lhudsonioides GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG
214Lbienne       CTTCTTTCTTGAGCGAAATTTGTTCTATGGAAAAATAGAACAGTTTGCGGAAGTCTTTACTCATTTTTTGGG
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L57Lflavum       GTTCCTTCTTGAACGAAAGTATTTCTATGGAAAAATAGAACAGTTTGCAGAAGTGTTTGCTAATTGTTTTCG
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SA10Lesterhuysen GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG
SA11LinumAgulhas GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG
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SA17Lthesioides  GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCAGAAGTCTTTGCTAATTGTTTTCG
SA19Lcomptonii   ------------------------------------------------------------------------
SA3Lacuticarpum  GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCAGAAGTCTTTGCTAATTGTTTTCG
SA4Lgracile      GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG
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SA7Linumdehoop   GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG
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Gyp1YesoHills    GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG
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162Ldecumbens    CTTCTTTCTTGAGCGAAATTTTTTCTATGGAAAAATAGAACAATTTGCGGAAGTTTTTGCTAATTATTTTGG
401Lintercursum  GTTTCTTCTTGAGCGAAAGTATTTCTATGGAAAAATAGAACAATTTGCGGAAGTCTTTGCTAATTGTTTTCG


                 777777788888888888888888888888888888888888888888888888888888888888888888
                 999999900000000001111111111222222222233333333334444444444555555555566666
Taxon/Node       345678901234567890123456789012345678901234567890123456789012345678901234
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001Lstriatum     GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
005Limbricatum   GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
006Lbahamense    GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
007Lbahamense    GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
009Lschiedeanum  GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
010Llewisii      GATTGTCTTATGGTTATTTAAGGATACTTTCATGCATTATGCTAGATATCAAGGAAAATTTTTTTAGCTTC
011Lsuffruticosu GACCAGCCTACGGTTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
012Lstrictum     GACCAGCCTACGGTTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
013Lnarbonense   TCTCCGCTTATGGTTATTTAAGGATACTTTCATCCATTATGCTAGATATCAAGGAAAAGCTATTTTAGCTTC
022Hclevelandii  GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTTTAGCTTC
025Hdisjunctum   GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTTTAGCTTC
027Lberlandierib GACCAGCCTATGTCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
028Lberlandierif GACCAGCCTATGTCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
032Lhudsonioides GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
034Lrupestre     GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
035Lrigidumrigid GACCAGCCTATGTCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
036Lrupestre     GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
037Lmexicanum    GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
038Llongipes     GACCAGCCTATGGCTGTTTAAGGATCCGTTCCTGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
040Lcruciata     GACCAGCCTATGGCTGTTTAAGGATCCGTTCCTGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
041Laristatum    GACCAGCCTATGTCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
042Lflagellare   GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGAAAAATACATTCTAGCTTC
044Reinwardtiain GACCGGCCTATCGTTGTTTAAGGATCCTTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
047Hdrymarioides GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
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049Cselaginoides GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
055Laethiopicum  GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
059Lcomptonii    GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
061Lesterhuysena GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
066Ltenue        GACCAGCCTATGGTTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
062Lheterostylum ------------------------------------------------------------------------
067Lthunbergii   ------------------------------------------------------------------------
072Ltrigynum     GACCAGCCTATGGTTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
075Lstriatum     GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
076Lmarginale    GATCCGCTTATGGTTATTTAAGGATACTTTCATGCATTATGCTAGATATCAAGGAAAATTTATTTTAGCTTC
083Sdigynum      GACCAGCCTATGGCTGTTTAAGGAGCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
089Llittorale    GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAACGAAAATACATTCTAGCTTC
091Loligophyllum GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
123Lkingii       GACCAGCCTATGGCTGTTTAAGGAGCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
124Lfloridanum   GACTAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
130Lvirginianum  GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
132Lsulcatum     GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
137Lvolkensii    GACCAGCCTACGGTTGTTTAAGGATCCGTTTATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
139Lholstii      GACCAGCCTACGGTTGTTTAAGGATCCGTTTATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
143Lorientale    GACCAGCCTATGGTTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
146Lnervosum     GATTGGCTTATGGTTATTTAAGGATACTTTCATGCATTATGCTAGATATCAAGGAAAATATATTTTAGCTTC
148Lhypericifoli GACCAGCTTATGGTTATTTAAGGATCCTTTCATGCATTATGCTAGATATCAAGGAAAATATATTTTAGTTTC
149Lflavum       GACCAGCCTATGGTTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
151Lcatharticum  GACCAGCCTATGGTTGTTTAATGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
156Ltenuifolium  GACCAGCCTACGGTTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
157Ltauricum     GACCAGCCTATGGTTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
163Lelegans      GACCAGCCTATGGTTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
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164Larboreum     GACCAGCCTATGGTTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
165Lrzedowskii   GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
171Rlinoides     GACCAGTCTATGGTTGTTTAAGGATCCTTTCATCCATTATGCTAGATATCAAGGAAAATACATTTTAGCTGG
183Lpuberulum    GACCAGCCTATGTCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
184Lvernale      GACCAGCCTATGTCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
186Llundellii    GACCAGCCTATGTCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
187Lcremnophyllu GACCAGTCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
193Lbrevifolium  GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
194Lprostratum   GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
195Lchamissonis  GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
196Lerigeroides  GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
200Lcarneum      GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
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206Cselaginoides GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
210bLmacraeimacr GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
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220Cselaginoides GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
221Lburkartii    GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
223Lkingii       ------------------------------------------------------------------------
224Lmonogynum    GATCCGCTTATGGTTATTTAAGGATACTTTCATGCATTATGCTAGATATCAAGGAAAATTTATTTTAGCTTC
228Lneomexicanum GACCAGCCTACGGCTGTTTAAGGAGCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
231Lcompactum    GACCAGCCTATGTCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
232Laustrale     GACCAGCCTATGTCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
233Laristatum    GACCAGCCTATGTCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
234Lrigidumberla GACCAGCCTATGTCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
236Lrigidumberla GACCAGCCTATGTCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
238Lpratense     GATTGTCTTATGGTTATTTAAGGATACTTTCATGCATTATGCTAGATATCAAGGAAAATTTTTTTTAGCTTC
241Lrigidumberla GACCAGCCTATGTCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
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258Lquadrifolium GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
259Lheterostylum GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
266Lcarteri      GACCAGCCTATGTCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
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269Lwestii       GACCAGCCTATGGCTGTTTAAGGATCCATTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
270Lorizabae     GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
291Lrigidumfilif GACCAGCCTATGTCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
293Lquatemalense GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
294Lcatharticum  GACCAGCCTATGGTTGTTTAATGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
302Lsubteres     ------------------------------------------------------------------------
307Lalatum       GACCAGCCTATGTCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
310Llasiocarpum  ------------------------------------------------------------------------
244Lhudsonioides GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
214Lbienne       GATCCGCTTATGGATATTTAAGGATACTTTCATGCATTATGCTAGATATCAAGGAAATTTTTTTTTAGCTTC
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250Lhudsonioides GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
A1Lrigidumpuberu GACCAGCCTATGTCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
F1Lbahamensecora GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
F2Lcruciata      GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
F5Lnelsonii      GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
F6Ltenellum      GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
F7Lscabrellum    GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTTTAGCTTC
L17Ltenuifolium  GACCAGCCTACGGTTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
L29Lmaritimum    GACCAGCCTATGGTTGTTTAAGGATCCGTTCATGCATTATGCCAGATATCAAGGAAAATACATTCTAGCTTC
L4Lusitatissimum GACCAGCTTATGGTTATTTAAGGATCCTTTCATGCATTATGCTAGATATCAAGGAAAATATATTTTAGCTTC
L41Lviscosum     GACCAGCTTATGGTTATTTAAGGATCCTTTCATGCATTATGCTAGATATCAAGGAAAATATATTTTAGCTTC
L43Lcatharticum  GACCAGCCTATGGTTGTTTAATGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
L57Lflavum       GACCAGCCTATGGTTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
LPB2Loligophyllu GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
PM1983Sdigynum   GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
SA1Lafricanum    GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
SA10Lesterhuysen GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
SA11LinumAgulhas GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
SA12Laethiopicum GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
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SA13LinumspWindb GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
SA14Lvillosum    GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
SA17Lthesioides  GACCAGCCTTTGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
SA19Lcomptonii   ------------------------------------------------------------------------
SA3Lacuticarpum  GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
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SA9Lesterhuysena GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC
SD1Lrigidumcompa GACCAGCCTATGTCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
Gyp1YesoHills    GACCAGCCTATGTCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATATATTCTAGCTTC
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162Ldecumbens    GATCCGTTTATGGTTTTTAAGGATACTTGCATGCATTATGCTAGATATCAAGGAAATTTTATTTTAGCTTC
401Lintercursum  GACCAGCCTATGGCTGTTTAAGGATCCGTTCATGCATTATGCTAGATATCAAGGAAAATACATTCTAGCTTC


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Taxon/Node       567890123456789012345678901234567890123456789012345678901234567890123456
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009Lschiedeanum  AAAGGGTACGCCCC---TTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
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011Lsuffruticosu AAAGGGTACGCCCC---TTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
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027Lberlandierib AAAGGGTACGCCCC---TTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
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062Lheterostylum ------------------------------------------------------------------------
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075Lstriatum     AAAGGGTACGCCCC---TTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
076Lmarginale    AAAGGGTACGCTCC---TTACAATTAAAAAATTGAAATATTATCTTGTCAATTTACGGCAATGTCATTTTTA
083Sdigynum      AAAGGGTACGCCCC---TTCTAATTCAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
089Llittorale    AAAGGGTACGCCCC---TTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
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137Lvolkensii    AAAGGGTACGCCCC---TTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
139Lholstii      AAAGGGTACGCCCC---TTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
143Lorientale    AAAGGGTACGCCCC---TTCTAATTAAAAAATTGAAATATTACCTTGTAAATTTATGGCAATCCCATTTTTA
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151Lcatharticum  AAAGGGTACGACGGCCCTTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
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163Lelegans      AAAGGGTACGCCCC---TTCTAATTAAAAAATGGAAATATTACCTTGTAAATTTATGGCAATCTCATTTTTA
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165Lrzedowskii   AAAGGGTACGCCCC---TTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
171Rlinoides     AAAGGGTACGCCCC---TTCTAATTCAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
183Lpuberulum    AAAGGGTACGCCCC---TTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
184Lvernale      AAAGGGTACGCCCC---TTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
186Llundellii    AAAGGGTACGCCCC---TTCTAATTAAGAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
187Lcremnophyllu AAAGGGTACGCCCC---TTCTAATTAAAAAATGGAAATATTACTTTGTCAATTTATGGCAATGTCATTTTTA
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194Lprostratum   AAAGGGTACGCCCC---TTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
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220Cselaginoides AAAGGGTACGCCCC---TTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
221Lburkartii    AAAGGGTACGCCCC---TTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
223Lkingii       ------------------------------------------------------------------------
224Lmonogynum    AAAGGGTACGCTCC---TTACAATTAAAAAATTGAAATATTATCTTGTCAATTTACGGCAATGTCATTTTTA
228Lneomexicanum AAAGGGTACGCCCC---TTCTAATTCAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
231Lcompactum    AAAGGGTACGCCCC---TTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
232Laustrale     AAAGGGTACGCCCC---TTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
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256Lmedium       AAAGGGTACGCCCC---TTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
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266Lcarteri      AAAGGGTACGCCCC---TTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
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SA1Lafricanum    AAAGGGTACGCCCC---TTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
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Gyp1YesoHills    AAAGGGTACGCCCC---TTCTAATTAAAAAATGGAAATATTACCTTGTCAATTTATGGCAATGTCATTTTTA
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Taxon/Node       789012345678901234567890123456789012345678901234567890123456789012345678
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009Lschiedeanum  TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
010Llewisii      TGTTTGGTCTCAACCGGAAAACATCTATTTAAATTCATTATCCAAGCATTCTGTCCACTTTTTAGGCTATCT
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022Hclevelandii  TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
025Hdisjunctum   TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
027Lberlandierib TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCAACTTTTTAGGCTATCT
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032Lhudsonioides TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAGCATTCTATCCACTTTTTAGGCTATCT
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062Lheterostylum ------------------------------------------------------------------------
067Lthunbergii   ------------------------------------------------------------------------
072Ltrigynum     TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
075Lstriatum     TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
076Lmarginale    TGTGTGGTCTCAACCAGAAAACATCTATTTAAACGTATTATCCAAACATTCTATCCACCTTTTAGGCTATCT
083Sdigynum      TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
089Llittorale    TGTGTGGTCTCAACCAAAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
091Loligophyllum TGTGTGGTCTCAACCAAAAAACATCTATTTAAACTCATTATACAAACATTCTATCCACTTTTTAGGCTATCT
123Lkingii       TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
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124Lfloridanum   TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
130Lvirginianum  TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
132Lsulcatum     TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
137Lvolkensii    TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACAGTCTATTCACTTTTTAGGCTATCT
139Lholstii      TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACAGTCTATTCACTTTTTAGGCTATCT
143Lorientale    TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
146Lnervosum     TGTGTGGTCTCAACCGGAAAACATCTATTTAAATTCATTATCTAAACATTCTATCCACTTTTTAGGCTATCT
148Lhypericifoli TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
149Lflavum       TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
151Lcatharticum  TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAACCATTCTATCCACTTTTTAGGCTATCT
156Ltenuifolium  TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
157Ltauricum     TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
163Lelegans      TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTAGCCACTTTTTAGGCTATCT
164Larboreum     TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
165Lrzedowskii   TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
171Rlinoides     TGTGTGGTCGCAACCAGAAAACATTTATTTAAACTCATTATCCAAACATTCTATCCAGTTTTTAGGTTATCT
183Lpuberulum    TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
184Lvernale      TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
186Llundellii    TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
187Lcremnophyllu TGTGTGGTCTCAACCAAAAAACATCTATTTAAACTCATTATACAAACATTATATCCACTTTTTAGGCTATCT
193Lbrevifolium  TGTGTGGTCTCAACCAAAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
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195Lchamissonis  TGTGTGGTCTCAACCAAAAAACATCTATTTAAATCCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
196Lerigeroides  TGTGTGGTCTCAACCAAAAAACATCTATTTAAATTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
200Lcarneum      TGTGTGGTCTCAACCAAAAAACATCTATTTAAATCCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
201Lpringlei     TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
206Cselaginoides TGTGTGGTCTCAACCAAAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
210bLmacraeimacr TGTGTGGTCTCAACCAAAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
215Lchamissonis  TGTGTGGTCTCAACCAAAAAACATCTATTTAAATCCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
219Lscoparium    TGTGTGGTCTCAACCAAAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
220Cselaginoides TGTGTGGTCTCAACCAAAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
221Lburkartii    TGTGTGGTCTCAACCAAAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
223Lkingii       ------------------------------------------------------------------------
224Lmonogynum    TGTGTGGTCTCAACCAGAAAACATCTATTTAAACGTATTATCCAAACATTCTATCCACCTTTTAGGCTATCT
228Lneomexicanum TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
231Lcompactum    TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
232Laustrale     TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
233Laristatum    TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
234Lrigidumberla TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCAACTTTTTAGGCTATCT
236Lrigidumberla TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCAACTTTTTAGGCTATCT
238Lpratense     TGTTTGGTCTCAACCGGAAAACATCTATTTAAATTCATTATCCAAGCATTCTGTCCACTTTTTAGGCTATCT
241Lrigidumberla TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCAACTTTTTAGGCTATCT
242Lrupestre     TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
246LrigidumKerr  TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCAACTTTTTAGGCTATCT
253Lelongatum    TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCAACTTTTTAGGCTATCT
256Lmedium       TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
257Lmedium       TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
258Lquadrifolium TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCGCTTTTTAGGCTATCT
259Lheterostylum TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCGCTTTTTAGGCTATCT
266Lcarteri      TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCAACTTTTTAGGCTATCT
268Larenicola    TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTTATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
269Lwestii       TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATTCACTTTTTAGGCTATCT
270Lorizabae     TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGTTATCT
291Lrigidumfilif TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
293Lquatemalense TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
294Lcatharticum  TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAACCATTCTATCCACTTTTTAGGCTATCT
302Lsubteres     ------------------------------------------------------------------------
307Lalatum       TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
310Llasiocarpum  ------------------------------------------------------------------------
244Lhudsonioides TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAGCATTCTATCCACTTTTTAGGCTATCT
214Lbienne       TGTGTGGTCTCAACCAGAAAACATCTATTTAAACATATTATCCAAACATTCTATCCACCTTTTAGGATATCT
249LinumBrackenr TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
250Lhudsonioides TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAGCATTCTATCCACTTTTTAGGCTATCT
A1Lrigidumpuberu TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCAACTTTTTAGGCTATCT
F1Lbahamensecora TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATTCAAACATTCTATCCACTTTTTAGGCTATCT
F2Lcruciata      TGTGTGGTCTCAACCAGAAAACATCTATTTAAACGCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
F5Lnelsonii      TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
F6Ltenellum      TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
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F7Lscabrellum    TGTGTGGTCTCAACCGGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
L17Ltenuifolium  TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
L29Lmaritimum    TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
L4Lusitatissimum TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
L41Lviscosum     TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAACCATCCTCTCCCCTTTTTAGGCTATCT
L43Lcatharticum  TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAACCATTCTATCCACTTTTTAGGCTATCT
L57Lflavum       TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
LPB2Loligophyllu TGTGTGGTCTCAACCAAAAAACATCTATTTAAACTCATTATACAAACATTCTATCCACTTTTTAGGCTATCT
PM1983Sdigynum   TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
SA1Lafricanum    TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCGCTTTTTAGGCTATCT
SA10Lesterhuysen TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCGCTTTTTAGGCTATCT
SA11LinumAgulhas TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCGCTTTTTAGGCTATCT
SA12Laethiopicum TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCGCTTTTTAGGCTATCT
SA13LinumspWindb TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCGCTTTTTAGGCTATCT
SA14Lvillosum    TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCGCTTTTTAGGCTATCT
SA17Lthesioides  TGTGTGGTCTCAATCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCGCTTTTTAGGCTATCT
SA19Lcomptonii   ------------------------------------------------------------------------
SA3Lacuticarpum  TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCGCTTTTTAGGCTATCT
SA4Lgracile      TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCGCTTTTTAGGCTATCT
SA5Lgracile      TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCGCTTTTTAGGCTATCT
SA6Lgracile      TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCGCTTTTTAGGCTATCT
SA7Linumdehoop   TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCGCTTTTTAGGCTATCT
SA8Ladustum      TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCGCTTTTTAGGCTATCT
SA9Lesterhuysena TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCGCTTTTTAGGCTATCT
SD1Lrigidumcompa TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
Gyp1YesoHills    TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
400Lrigidumrigid TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT
162Ldecumbens     TGTGTGGTCTCAATCAGAAAACATCTATTTAAACTCATTATCCAAAGATTCTATCCACCTTTTAGGCTATCT
401Lintercursum  TGTGTGGTCTCAACCAGAAAACATCTATTTAAACTCATTATCCAAACATTCTATCCACTTTTTAGGCTATCT


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                 011111111112222222222333333333344444444445555555555666666666677777777778
Taxon/Node       901234567890123456789012345678901234567890123456789012345678901234567890
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001Lstriatum     TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
005Limbricatum   TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGTTAGAAAATTCTTTTATAATGGATAATAC
006Lbahamense    TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
007Lbahamense    TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
009Lschiedeanum  TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTAAAATGGTAGAAAATTCTTTTATAATGGATAATAC
010Llewisii      TTCAAGTCTAGGATTAAATCCTTCGGTCTTCCGAAGTCAAATGATAGAAAATTCTTTTCTAATAGATAATAG
011Lsuffruticosu TTCAAGTCTACGACTAAACCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
012Lstrictum     TTCAAGTCTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
013Lnarbonense   TTCAAGTCTAGGATTAAATCTTTCGGTCTTGCGAAGTCAAATGGTAGAAAATTCTTTTCTAATAGATAATAC
022Hclevelandii  TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
025Hdisjunctum   TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
027Lberlandierib TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTCTAATGGATAATAC
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032Lhudsonioides TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
034Lrupestre     TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
035Lrigidumrigid TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTCTAATGGATAATAC
036Lrupestre     TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
037Lmexicanum    TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
038Llongipes     TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
040Lcruciata     TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
041Laristatum    TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
042Lflagellare   TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
044Reinwardtiain TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATAGATAATAC
047Hdrymarioides TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAAGAC
048Hmicranthum   TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
049Cselaginoides TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
055Laethiopicum  TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
059Lcomptonii    TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
061Lesterhuysena TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
066Ltenue        TTCAAGTCTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
062Lheterostylum ------------------------------------------------------------------------
067Lthunbergii   ------------------------------------------------------------------------
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072Ltrigynum     TTCAAGTCTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
075Lstriatum     TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
076Lmarginale    TTCAAGTCTAGGATTAAATCCTTCGGTCTTGCGAAGTCAAATGGTAGAAAATTCTTTTCTAATAGATAATAC
083Sdigynum      TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAACTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
089Llittorale    TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
091Loligophyllum TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
123Lkingii       TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAACTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
124Lfloridanum   TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
130Lvirginianum  TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
132Lsulcatum     TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
137Lvolkensii    TTCAAGTCTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGAGAATAC
139Lholstii      TTCAAGTCTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGAGAATAC
143Lorientale    TTCAAGTCTACGATTAAATCCTTCGGTCTTGCGAAGTCAAATGGTGGAAAATTCTTTTATAATGGATAATAC
146Lnervosum     TTCAAGTCTAGGATTAAATCCTTCGGTCTTCCGAAGTCAAATGGTAGAAAATTCTTATCTAATAGATAATAG
148Lhypericifoli TTCAGGTCTACGATTAAATCCTTCGGTCTTCCGAAGTCAAATGGTAGAAAATTCTTTTCTAATAGATAATAC
149Lflavum       TTCAAGTCTACGATTAAATCCTTCGGTCTTGCGAAGTCAAATGGTGGAAAATTCTTTTATAATGGATAATAC
151Lcatharticum  TTCAAGTCTACGATTAAATTCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
156Ltenuifolium  TTCAAGTCTACGATTAAACCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
157Ltauricum     TTCAAGTCTACGATTAAATCCTTCGGTCTTGCGAAGTCAAATGGTGGAAAATTCTTTTATAATGGATAATAC
163Lelegans      TTCAAGTCTACGATTAAATCCTTCGGTCTTGCGAAGTCAAATGGTGGAAAATTCTTTTATAATGGATAATAC
164Larboreum     TTCAAGTCTACGATTAAATCCTTCGGTCTTGCGAAGTCAAATGGTGGAAAATTCTTTTATAATGGATAATAC
165Lrzedowskii   TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
171Rlinoides     TTCAAGTCTACGATTAAATCCTTCAGTCTTACGAAGTCAAATGGTAGAAAAGTCTTTTATAATAGATAATAC
183Lpuberulum    TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
184Lvernale      TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
186Llundellii    TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTCTAATGGATAATAC
187Lcremnophyllu TTCAAGTGTACGATTTAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
193Lbrevifolium  TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
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195Lchamissonis  TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
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200Lcarneum      TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
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210bLmacraeimacr TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
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221Lburkartii    TTCAAGTGTACAATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
223Lkingii       ------------------------------------------------------------------------
224Lmonogynum    TTCAAGTCTAGGATTAAATCCTTCGGTCTTGCGAAGTCAAATGGTAGAAAATTCTTTTCTAATAGATAATAC
228Lneomexicanum TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAATTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
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232Laustrale     TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
233Laristatum    TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
234Lrigidumberla TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTCTAATGGATAATAC
236Lrigidumberla TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTCTAATGGATAATAC
238Lpratense     TTCAAGTCTAGGATTAAATCCTTCGGTCTTCCGAAGTCAAATGGTAGAAAATTCTTTTCTAATAGATAATAG
241Lrigidumberla TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTCTAATGGATAATAC
242Lrupestre     TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
246LrigidumKerr  TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTCTAATGGATAATAC
253Lelongatum    TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTCTAATGGATAATAC
256Lmedium       TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
257Lmedium       TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
258Lquadrifolium TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
259Lheterostylum TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
266Lcarteri      TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTCTAATGGATAATAC
268Larenicola    TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
269Lwestii       TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
270Lorizabae     TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
291Lrigidumfilif TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTCTAATGGATAATAC
293Lquatemalense TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
294Lcatharticum  TTCAAGTCTACGATTAAATTCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
302Lsubteres     ------------------------------------------------------------------------
307Lalatum       TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
310Llasiocarpum  ------------------------------------------------------------------------
244Lhudsonioides TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
214Lbienne       TTCAAGTCTAGAATTCAATCCTTCGGTTTTGCGAAGTCAAATGGTAGAAAATTCTTTTCTAATAGATAATAC
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249LinumBrackenr TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGTTAGAAAATTCTTTTATAATGGATAATAC
250Lhudsonioides TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
A1Lrigidumpuberu TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTCTAATGGATAATAC
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F2Lcruciata      TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTAAAATGGTAGAAAATTCTTTTAGAATGGATAATAC
F5Lnelsonii      TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTAAAATGGTAGAAAATTCTTTTATAATGGATAATAC
F6Ltenellum      TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTAAAATGGTAGAAAATTCTTTTATAATGGATAATAC
F7Lscabrellum    TTCAAGTGTACGATTAAATCCTTTGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
L17Ltenuifolium  TTCAAGTCTACGATTAAACCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
L29Lmaritimum    TTCAAGTCTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTCTAATGGATAATAC
L4Lusitatissimum TTCAGGTCTACGATTAAATCCTTCGGTCTTCCGAAGTCAAATGGTAGAAAATTCTTTTCTAATAGATAATAC
L41Lviscosum     TTCAGGTCTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTCTAATAGATAATAC
L43Lcatharticum  TTCAAGTCTACGATTAAATTCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
L57Lflavum       TTCAAGTCTACGATTAAATCCTTCGGTCTTGCGAAGTCAAATGGTGGAAAATTCTTTTATAATGGATAATAC
LPB2Loligophyllu TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
PM1983Sdigynum   TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
SA1Lafricanum    TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
SA10Lesterhuysen TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
SA11LinumAgulhas TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
SA12Laethiopicum TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
SA13LinumspWindb TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
SA14Lvillosum    TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
SA17Lthesioides  TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
SA19Lcomptonii   ------------------------------------------------------------------------
SA3Lacuticarpum  TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
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SA7Linumdehoop   TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
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SA9Lesterhuysena TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
SD1Lrigidumcompa TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
Gyp1YesoHills    TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
400Lrigidumrigid TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC
162Ldecumbens    TTCAAGTCTAGGATTAAATCCTTCGCTTGTGCGAAGTCAAATGGTAGAAAATTCTTTTCTAATAGATAATAC
401Lintercursum  TTCAAGTGTACGATTAAATCCTTCGGTCTTACGAAGTCAAATGGTAGAAAATTCTTTTATAATGGATAATAC


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Taxon/Node       123456789012345678901234567890123456789012345678901234567890123456789012
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009Lschiedeanum  TACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAAAAAGACAAATTTTGTAA
010Llewisii      AAAGTGTAAATTGGATACAAAAATTCCAATTTTTTCCTTGATTTCAGCTTTGGAAAAAGCGAAATTTTGTAA
011Lsuffruticosu TACGCAGAAATTTGATACAATCATTCCAATTTATTCGTTGATTGGAACCTTGGAAAAAGCAAAATTTTGTAA
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032Lhudsonioides TACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGAAAAAAGACAAATTTTGTAA
034Lrupestre     TACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAAAAAGAGAAATTTTGTAA
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037Lmexicanum    TACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAAAAAGACAAATTTTGTAA
038Llongipes     TACGGAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAAAAAGAAAAATTTTGTAA
040Lcruciata     TACGGAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAAAAAGAAAAATTTTGTAA
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047Hdrymarioides TACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAAAAAGACAAATTTTGTAA
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059Lcomptonii    TACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAAAAAGACAAATTTTGTAA
061Lesterhuysena TACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAAAAAGACAAATTTTGTAA
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062Lheterostylum ------------------------------------------------------------------------
067Lthunbergii   ------------------------------------------------------------------------
072Ltrigynum     TACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAAAAAGCCAAATTTTGTAA
075Lstriatum     TACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAAAAAGACAAATTTTGTAA
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083Sdigynum      TACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAAAAAGATCAATTTTGTAA
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157Ltauricum     TACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAAAAAGCCAAATTTTGTAC
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184Lvernale      TACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGAAAAAAGACAAATTTTGTAA
186Llundellii    TACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGAAAAAAGACAAATTTTGTAA
187Lcremnophyllu TGCGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAAAAAGACAAATTTTGTAA
193Lbrevifolium  TACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAAAAAGACAAATTTTGTAA
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220Cselaginoides TACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAAAAAGACAAATTTTGTAA
221Lburkartii    TACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAAAAAGAAAAATTTTGTAA
223Lkingii       ------------------------------------------------------------------------
224Lmonogynum    TAAGCATAAATTTGATGCAAAAATTCCAATTTTTTCTTTGATTGCAGCCTTGGAAAAAGCTCAATTTTGTAA
228Lneomexicanum TACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAAAAAGATAAATTTTGTAA
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F2Lcruciata      TACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAAAAAGACAAATTTTGTAA
F5Lnelsonii      GACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAAAAAGACAAATTTTGTAA
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L41Lviscosum     TAGGCATAAATTGGATACAAGAATTCCACTTCGTTCATTGATTGCAGCCATGGAAAAAGCTAAATTTTGTAA
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SA10Lesterhuysen TACGCAGAAATTTGATACAATAATTCCAATTCTTTCGTTGATTGGAGCCTTGGAAAAAGACAAATTTTGTAA
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Gyp1YesoHills    TACGCAGAAATTTGATACAATCATTCCAATTCTTTCGTTGATTGGAGTCTTGAAAAAAGACAAATTTTGTAA
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Taxon/Node       345678901234567890123456789012345678901234567890123456789012345678901234
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009Lschiedeanum  CG----------------------------------------------------------------------
010Llewisii      CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGGATTATTGGAAGAATTTTTTACAGAAGAAAAACGGA
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022Hclevelandii  CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
025Hdisjunctum   CGACTGTACGCA-TTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAAA
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028Lberlandierif CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
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037Lmexicanum    CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
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049Cselaginoides CG----------------------------------------------------------------------
055Laethiopicum  CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
059Lcomptonii    CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
061Lesterhuysena CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
066Ltenue        TGACTGTACGGATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
062Lheterostylum --ACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
067Lthunbergii   --ACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
072Ltrigynum     TG----------------------GG-TGGGGTCGGAATTG-TGG-AGAG-TTATTACCGACGAAAA-CAGA
075Lstriatum     CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
076Lmarginale    CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTATTGGAAGAATTTTTTACAGAAGAAAAACGGA
083Sdigynum      CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
089Llittorale    CG----------------------------------------------------------------------
091Loligophyllum CG----------------------------------------------------------------------
123Lkingii       CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTAACGACGAAAAACAGA
124Lfloridanum   CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
130Lvirginianum  CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
132Lsulcatum     CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
137Lvolkensii    CGACTATACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
139Lholstii      CGACTGTACGCA-TTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
143Lorientale    CGACTGTACGCATTTTTTTGAAAAAGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
146Lnervosum     CGACTGTACGCCTTTTTTT-AAAAGGTTGGGGTGGAATTATTGGAAGAATTTTTTACAGAAGAAAAACGGA
148Lhypericifoli CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTATTGGAAGAATTTTTTACAGAAGAAAAACGGA
149Lflavum       CGACTGTACGCATTTTTTT-AAAAAGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
151Lcatharticum  CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
156Ltenuifolium  CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
157Ltauricum     CGACTGTACGCATTTTTTTGAAAAAGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
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164Larboreum     CGACTGTACGCATTTTTTTGAAAAAGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
165Lrzedowskii   CGACTGTACGCA--TTTTTGAAAAGGTTGGGGTCGGGATTATTGGAAGAATTTTTTACAGAAGAAAAACGGA
171Rlinoides     TGACTGTACGCATTTTTTT-AAAAGGTTGGGTTCGGAATTATTGGAAGAATTTTTTACCGAAGAAAAACAGA
183Lpuberulum    CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
184Lvernale      CGACTGTACGCATTCCTTTGACAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
186Llundellii    CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
187Lcremnophyllu CG----------------------------------------------------------------------
193Lbrevifolium  CG----------------------------------------------------------------------
194Lprostratum   CG----------------------------------------------------------------------
195Lchamissonis  CG----------------------------------------------------------------------
196Lerigeroides  CG----------------------------------------------------------------------
200Lcarneum      CG----------------------------------------------------------------------
201Lpringlei     CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
206Cselaginoides CG----------------------------------------------------------------------
210bLmacraeimacr CG----------------------------------------------------------------------
215Lchamissonis  CG----------------------------------------------------------------------
219Lscoparium    CG----------------------------------------------------------------------
220Cselaginoides CG----------------------------------------------------------------------
221Lburkartii    CG----------------------------------------------------------------------
223Lkingii       --ACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTAACGACGAAAAACAGA
224Lmonogynum    CG-----------------------GTTGGGGTCGGAATTATTGGAAGAATTTTTTACAGAAGAAAAACGGA
228Lneomexicanum CG----------------------GGTTGGGGTCGGAATTGTTGGAAGAATTTTTTA-----AAAAAACAGA
231Lcompactum    CG-CTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
232Laustrale     CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
233Laristatum    CGACTGTACGCATTTTTTTG-AAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
234Lrigidumberla CG-------------------AAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
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238Lpratense     CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGGATTATTGGAAGAATTTTTTACAGAAGAAAAACGGA
241Lrigidumberla CG----TACGCATTTTTTTG-AAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
242Lrupestre     CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
246LrigidumKerr  CG----------TTTTTTT--AAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
253Lelongatum    CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTTGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
256Lmedium       CGACTGTACGCATTTTTTT--AAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
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259Lheterostylum CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
266Lcarteri      CG----------------------------------------------------------------------
268Larenicola    CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
269Lwestii      CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
270Lorizabae    CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
291Lrigidumfilif CGACTGTACGCATTTTTTT-GAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
293Lquatemalense CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
294Lcatharticum  CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
302Lsubteres    --ACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGATGAAAAACAGA
307Lalatum      CG---GTACGCATTTTTTTG-AAAGG?TGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
310Llasiocarpum  ---------GCATTTTTTT-GAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
244Lhudsonioides CG----------------------------------------------------------------------
214Lbienne      CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTATTGGAAGAATTTTTTACAGAAGAAAAACGGA
249LinumBrackenr CGACTGTACGCATTTTTT--AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
250Lhudsonioides CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
A1Lrigidumpuberu CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
F1Lbahamensecora CAACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
F2Lcruciata     CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
F5Lnelsonii     CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCAGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
F6Ltenellum     CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
F7Lscabrellum   CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
L17Ltenuifolium  CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
L29Lmaritimum   TGACTGTACGGATTTTTTTGAAAAGGTTGGGGTCAGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
L4Lusitatissimum CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTATTGGAAGAATTTTTTACAGAAGAAAAACGGA
L41Lviscosum    CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTATTGGAAGAATTTTTTACAGAAGAAAAACGGA
L43Lcatharticum  CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
L57Lflavum      CG--------CATTTTTTTGAAAAAGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
LPB2Loligophyllu CG----------------------------------------------------------------------
PM1983Sdigynum   CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
SA1Lafricanum   CA---------------------------------------------------TTTACCGACGAAAAACAGA
SA10Lesterhuysen CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
SA11LinumAgulhas CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
SA12Laethiopicum CG----------------------------------------------------------------------
SA13LinumspWindb CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
SA14Lvillosum   CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
SA17Lthesioides  CAACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
SA19Lcomptonii   --ACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
SA3Lacuticarpum  CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
SA4Lgracile     CGACTGTACGCATTTTTTT--AAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
SA5Lgracile     CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
SA6Lgracile     CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
SA7Linumdehoop   CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
SA8Ladustum     CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
SA9Lesterhuysena CGACTGTACGCATTTTTTT-AAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
SD1Lrigidumcompa CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
Gyp1YesoHills   CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
400Lrigidumrigid CGACTGTACGCATTTTTTTGAAAAGGTTTGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA
162Ldecumbens    CGACTGTACGCCTTTTTTTGAAA-GGTTGGGGTCGGAATTATTGGAAGAATTTTTTACAGAAGAAAAACGGA
401Lintercursum  CGACTGTACGCATTTTTTTGAAAAGGTTGGGGTCGGAATTGTTGGAAGAATTTTTTACCGACGAAAAACAGA


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                 222222222222222222222222222222222222222222222222222222222222222222222222
                 222223333333333444444444455555555556666666666777777777788888888889999999
Taxon/Node       567890123456789012345678901234567890123456789012345678901234567890123456
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001Lstriatum    TTCTTTCTTTGATTCCAAGAACTTCGYCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
005Limbricatum  TTCTTTCTTCGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
006Lbahamense   TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGAGTTTGGTATTTGGATA
007Lbahamense   TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGAGTTTGGTATTTGGATA
009Lschiedeanum  ------------------------------------------------------------------------
010Llewisii     TTCTTTCTTTGATTCCAAGAACTTCTTCTATTTCACAAAGGTTATATAAAGGACGGGTTTGGTATTTGGATA
011Lsuffruticosu TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
012Lstrictum    TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
013Lnarbonense  TTCTTTCTTTGATTCCAAGAACTTCTTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
022Hclevelandii  TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
025Hdisjunctum  TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
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027Lberlandierib TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
028Lberlandierif TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
032Lhudsonioides TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
034Lrupestre     TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGAGTTTGGTATTTGGATA
035Lrigidumrigid TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
036Lrupestre     TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGAGTTTGGTATTTGGATA
037Lmexicanum    TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
038Llongipes     TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCCCAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
040Lcruciata     TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
041Laristatum    TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
042Lflagellare   TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGAGTTTGGTATTTGGATA
044Reinwardtiain TTCTTTCTTTGATTCCAAGAACTTCTTCTATTTCAGAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
047Hdrymarioides TTCTTTCTTTGATTCCAAGAATTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
048Hmicranthum   TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
049Cselaginoides ------------------------------------------------------------------------
055Laethiopicum  TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
059Lcomptonii    TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
061Lesterhuysena TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
066Ltenue        TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCCCAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
062Lheterostylum TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
067Lthunbergii   TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
072Ltrigynum     TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCCCAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
075Lstriatum     TTCTTTCTTTGATTCCAAGAACTTCGCCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
076Lmarginale    TTCTTTCTTTGATTCCAAGAACTTCTTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
083Sdigynum      TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTCTATAAAGGACGGGTTTGGTATTTGGATA
089Llittorale    ------------------------------------------------------------------------
091Loligophyllum ------------------------------------------------------------------------
123Lkingii       TTCTTTCTTTGATTCCAAAAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
124Lfloridanum   TTCTTTCTTTGATTCCAAGAACTTCGCCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
130Lvirginianum  TTCTTTCTTTGATTCCAAGAACTTCGCCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
132Lsulcatum     TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
137Lvolkensii    TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
139Lholstii      TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
143Lorientale    TTCTTTCTTT---------AACTTCGTCTATTTCCCAAAGATTTATAAAGGACGGGTTTGGTATTTGGATA
146Lnervosum     TTCTTTCTTTGATTCCAAGAACTTCTTCTATTTCACAAAGGTTATATAAAGGACGGGTTTGGTATTTGGATA
148Lhypericifoli TTCTTTCTTTGATTCCAAGAACTTCTTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
149Lflavum       TTCTTTCTTT---------AACTTCGTCTATTTCCCAAAGATTTATAAAGGACGGGTTTGGTATTTGGATA
151Lcatharticum  TTCTTTCCTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGGCGGGTTTGGTATTTGGATA
156Ltenuifolium  TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
157Ltauricum     TTCTTTCTTT---------AACTTCGTCTATTTCCCAAAGATTTATAAAGGACGGGTTTGGTATTTGGATA
163Lelegans      TTCTTTCTTT---------AACTTCGTCTATTTCCCAAAGATTTATAAAGGACGGGTTTGGTATTTGGATA
164Larboreum     TTCTTTCTTT---------AACTTCGTCTATTTCCCAAAGATTTATAAAGGACGGGTTTGGTATTTGGATA
165Lrzedowskii   TTCTTTCTTTGATTCCAAGAACTTCTTCTATTTCACAAAGGTTATATAAAGGACGGGTTTGGTATTTGGATA
171Rlinoides     TTCTTTCTTTGATTCCAACAACTTCAGCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
183Lpuberulum    TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
184Lvernale      TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
186Llundellii    TTCTTTCTTTGAGTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
187Lcremnophyllu ------------------------------------------------------------------------
193Lbrevifolium  ------------------------------------------------------------------------
194Lprostratum   ------------------------------------------------------------------------
195Lchamissonis  ------------------------------------------------------------------------
196Lerigeroides  ------------------------------------------------------------------------
200Lcarneum      ------------------------------------------------------------------------
201Lpringlei     TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGAGTTTGGTATTTGGATA
206Cselaginoides ------------------------------------------------------------------------
210bLmacraeimacr ------------------------------------------------------------------------
215Lchamissonis  ------------------------------------------------------------------------
219Lscoparium    ------------------------------------------------------------------------
220Cselaginoides ------------------------------------------------------------------------
221Lburkartii    ------------------------------------------------------------------------
223Lkingii       TTCTTTCTTTGATTCCAAAAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
224Lmonogynum    TTCTTTCTTTGATTCCAAGAACTTCTTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
228Lneomexicanum TTCTTTCTTTGATTCCAAAAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
231Lcompactum    TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
232Laustrale     TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
233Laristatum    TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
234Lrigidumberla TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
236Lrigidumberla TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
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238Lpratense      TTCTTTCTTTGATTCCAAGAACTTCTTCTATTTCACAAAGGTTATATAAAGGACGGGTTTGGTATTTGGATA
241Lrigidumberla  TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
242Lrupestre      TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGAGTTTGGTATTTGGATA
246LrigidumKerr   TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
253Lelongatum     TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
256Lmedium        TTCTTTCTTTGATTCCAAGAACTTCGCCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
257Lmedium        TTCTTTCTTTGATTCCAAGAACTTCGCCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
258Lquadrifolium  TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
259Lheterostylum  TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
266Lcarteri       ------------------------------------------------------------------------
268Larenicola     TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGAGTTTGGTATTTGGATA
269Lwestii        TTCTTTCTTTGATTCCAAGAACTTCGCCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
270Lorizabae      TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
291Lrigidumfilif  TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
293Lquatemalense  TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
294Lcatharticum   TTCTTTCCTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGGCGGGTTTGGTATTTGGATA
302Lsubteres      TTCTTTCTTTGATTCCAAGAACTTCCTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
307Lalatum        TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
310Llasiocarpum   TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
244Lhudsonioides  ------------------------------------------------------------------------
214Lbienne        TTCTTTCTTTGATTCCAAGAACTTCTTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
249LinumBrackenr  TTCTTTCTTCGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
250Lhudsonioides  TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
A1Lrigidumpuberu  TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
F1Lbahamensecora  TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGAGTTTGGTATTTGGATA
F2Lcruciata       TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
F5Lnelsonii       TTATTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
F6Ltenellum       TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
F7Lscabrellum     TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
L17Ltenuifolium   TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
L29Lmaritimum     TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCCCAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
L4Lusitatissimum  TTCTTTCTTTGATTCCAAGAACTTCTTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
L41Lviscosum      TTCTTTCTTTGATTCCAAGAACTTCTTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
L43Lcatharticum   TTCTTTCCTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGGCGGGTTTGGTATTTGGATA
L57Lflavum        TTCTTTCTTT---------AACTTCGTCTATTTCCCAAAGATTTTATAAAGGACGGGTTTGGTATTTGGATA
LPB2Loligophyllu  ------------------------------------------------------------------------
PM1983Sdigynum    TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTCTATAAAGGACGGGTTTGGTATTTGGATA
SA1Lafricanum     TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
SA10Lesterhuysen  TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
SA11LinumAgulhas  TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
SA12Laethiopicum  ------------------------------------------------------------------------
SA13LinumspWindb  TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
SA14Lvillosum     TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
SA17Lthesioides   TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
SA19Lcomptonii    TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
SA3Lacuticarpum   TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
SA4Lgracile       TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
SA5Lgracile       TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
SA6Lgracile       TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
SA7Linumdehoop    TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
SA8Ladustum       TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
SA9Lesterhuysena  TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
SD1Lrigidumcompa  TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
Gyp1YesoHills     TTCTTTCTTTGATTTCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
400Lrigidumrigid  TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
162Ldecumbens     TTCTTTCTTTGATTCCAAGAACTTCGTCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA
401Lintercursum   TTCTTTCTTTGATTCCAAGAACTTCGCCTATTTCACAAAGATTATATAAAGGACGGGTTTGGTATTTGGATA


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                  222333333333333333333333333333333333333333333333333333333333333333333333
                  999000000000011111111112222222222333333333344444444445555555555666666666
Taxon/Node        789012345678901234567890123456789012345678901234567890123456789012345678
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001Lstriatum      TTGTTTGTATSAATGAACTGGCCCATGATAAAAATTTCTTTATCAAACATGGAAATWSAAATTTTCCATAAA
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006Lbahamense     TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCCATAAA
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009Lschiedeanum  ------------------------------------------------------------------------
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011Lsuffruticosu TTGTTTGTATCAATGAACTGGTCCATGATAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
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013Lnarbonense   TTGTTTGTATCAATGAACTGGCCCATCATAAAAATTTTTTTATGAAACATGGAAATCGAAATTCTCCATAAA
022Hclevelandii  TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTCTTTATCAAACATGGAAATTGAAATTTTCCATAAA
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028Lberlandierif TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCCATAAA
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037Lmexicanum    TTGTTTGTATCAATGAACTGGCCCATGAGATAAATTTTTTTATCAAACATGGAAATCGAAATTTTCCCTAAA
038Llongipes     TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTCGTTATCAAACATGGAAATAGACATTTTCCATAAA
040Lcruciata     TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTCGTTATCAAACATGGAAATAGACATTTTCCATAAA
041Laristatum    TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTACATAAA
042Lflagellare   TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCCATAAA
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048Hmicranthum   TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCCATAAA
049Cselaginoides ------------------------------------------------------------------------
055Laethiopicum  TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
059Lcomptonii    TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTTTTTATCAAACATGGAAATAGAAAATTTCCATAAA
061Lesterhuysena TTGTTTGTATCAATGAACTGGCCCATGAWAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
066Ltenue        TTGTTTGTATCAATGAACTGGCCCATGAAAAAAATTTGTTTATCAAACATGTAAATAGAAATTTTCCATAAA
062Lheterostylum TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
067Lthunbergii   TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
072Ltrigynum     TTGTTTGTATCAATGAACTGGCCCATGAAAAAAATTTGTTTATCAAACATGTAAATAGAAATTTTCCATAAA
075Lstriatum     TTGTTTGTATGAATGAACTGGCCCATGAGAAAAATTTCTTTATCAAACATGGAAATACAAATTTTCCATAAA
076Lmarginale    TTGTTTGTATCAATGAACTGGCCCATCATAAAAATTTGTTTATGAAACATGGAAATCGAAATTCTCCATAAA
083Sdigynum      TTGTTTGTATCAATGAACTGGCCCATGAGAAAAATTTCTTTAGCAAACATGGAAATAGAAATTTTCCATAAA
089Llittorale    ------------------------------------------------------------------------
091Loligophyllum ------------------------------------------------------------------------
123Lkingii       TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCCATAAA
124Lfloridanum   TTGTTTGTATGAATGAACTGGCCCATGATAAAAATTTCTTTATCAAACATGGAAATACAAATTTTCCATAAA
130Lvirginianum  TTGTTTGTATGAATGAACTGGCCCATGAGAAAAATTTCTTTATCAAACATGGAAATACAAATTTTCCATAAA
132Lsulcatum     TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATTGAAATTTTCCATAAA
137Lvolkensii    TTGTTTGTATCAATGAACTGGTCCATGATAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
139Lholstii      TTGTTTGTATCAATGAACTGGTCCATGATAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
143Lorientale    TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
146Lnervosum     TTGTTTGTATCAATGAACTGGCCCATCATAAAAATTTGTTTATGAAACATGGAAATCGAAATTCTCCATAAA
148Lhypericifoli TTGTTTGTATCAACGAACTGGCCCATCATAAAAATTTGTTTATGAAACATGGAAATAGAAATTATCCATAAA
149Lflavum       TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
151Lcatharticum  TTGTTTGTATCAATGAACTGGCCCATGAGAAAAATTTGTTTATCAAACATGAAAATCGAAATTTTCCAAAAA
156Ltenuifolium  TTGTTTGTATCAATGAACTGGTCCATGATAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
157Ltauricum     TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
163Lelegans      TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
164Larboreum     TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
165Lrzedowskii   TTGTTTGTATCAATGAACTGGCCCATCATAAAAATTTGTTTATGAAACATGGAAATCGAAATTCTCCATAAA
171Rlinoides     TTGTTTGTATCAATGAACTGGCCCATCATCAACATGGGTTTATGAAACACGCAAATAGCCATTTTCTATAAA
183Lpuberulum    TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCCATAAA
184Lvernale      TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCCATAAA
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187Lcremnophyllu ------------------------------------------------------------------------
193Lbrevifolium  ------------------------------------------------------------------------
194Lprostratum   ------------------------------------------------------------------------
195Lchamissonis  ------------------------------------------------------------------------
196Lerigeroides  ------------------------------------------------------------------------
200Lcarneum      ------------------------------------------------------------------------
201Lpringlei     TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCCATAAA
206Cselaginoides ------------------------------------------------------------------------
210bLmacraeimacr ------------------------------------------------------------------------
215Lchamissonis  ------------------------------------------------------------------------
219Lscoparium    ------------------------------------------------------------------------
220Cselaginoides ------------------------------------------------------------------------
221Lburkartii    ------------------------------------------------------------------------
223Lkingii       TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCCATAAA
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224Lmonogynum    TTGTTTGTATCAATGAACTGGCCCATCATAAAAATTTGTTTATGAAACATGGAAATCGAAATTCTCCATAAA
228Lneomexicanum TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCTATAAA
231Lcompactum    TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCCATAAA
232Laustrale     TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTACATAAA
233Laristatum    TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTACATAAA
234Lrigidumberla TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCCATAAA
236Lrigidumberla TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCCATAAA
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246LrigidumKerr  TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCCATAAA
253Lelongatum    TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCCATAAA
256Lmedium       TTGTTTGTATGAATGAACTGGCCCATGATAAAAATTTCTTTATCAAACATGGAAATACAAATTTTCCATAAA
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259Lheterostylum TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
266Lcarteri      ------------------------------------------------------------------------
268Larenicola    TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCCATAAA
269Lwestii       TTGTTTGTATGAATGAACTGGTCCATGATAAAAATTTCTTTATCAAACATGGAAATACAAATTTTCCATAAA
270Lorizabae     TTGTTTGTATCAATGAACTGGCCCATGAGATAAATTTTTTTATCAAACATGGAAATCGAAATTTTCCCTAAA
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293Lquatemalense TTGTTTGTATCAATGAACTGGCCCATGAGATAAATTTTTTTATCAAACATGGAAATCGAAATTTTCCCTAAA
294Lcatharticum  TTGTTTGTATCAATGAACTGGCCCATGAGAAAAATTTGTTTATCAAACATGAAAATCGAAATTTTCCAAAAA
302Lsubteres     TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCCATAAA
307Lalatum       TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATACAAATTTTCCATAAA
310Llasiocarpum  TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCCATAAA
244Lhudsonioides ------------------------------------------------------------------------
214Lbienne       TTGTTTGTATCAATGAACTGGCCCATCATAAAAATTTTTTTATGAAACATGGAAATCGAAATTCTCCATAAA
249LinumBrackenr TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATCGAAATTTTCCATAAA
250Lhudsonioides TTGTTTGTATCAACGAACTGGCCCATGATCAAAATTTCGTTATCAAACATGGAAATAGAAATTTTCCAGAAA
A1Lrigidumpuberu TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCCATAAA
F1Lbahamensecora TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCCATAAA
F2Lcruciata     TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCCATAAA
F5Lnelsonii     TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCCATAAA
F6Ltenellum     TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTCCATAAA
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L41Lviscosum    TTGTTCGTATCAACGACCGGGCCCATCTTCAAAATTAGTTTATGAAACATGGAAATAGAAATTATCCATAAA
L43Lcatharticum TTGTTTGTATCAATGAACTGGCCCATGAGAAAAATTTGTTTATCAAACATGAAAATCGAAATTTTCCAAAAA
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LPB2Loligophyllu ------------------------------------------------------------------------
PM1983Sdigynum  TTGTTTGTATCAATGAACTGGCCCATGAGAAAAATTTCTTTAGCAAACATGGAAATAGAAATTTTCCATAAA
SA1Lafricanum   TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
SA10Lesterhuysen TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
SA11LinumAgulhas TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
SA12Laethiopicum ------------------------------------------------------------------------
SA13LinumspWindb TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
SA14Lvillosum   TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
SA17Lthesioides TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
SA19Lcomptonii  TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTTTTTATCAAACATGGAAATAGAAAATTTCCATAAA
SA3Lacuticarpum TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTTTTTATCAAACATGGAAATAGAAATTTTCCATAAA
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SA6Lgracile     TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
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SA8Ladustum     TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
SA9Lesterhuysena TTGTTTGTATCAATGAACTGGCCCATGATAAAAATTTGTTTATCAAACATGGAAATAGAAATTTTCCATAAA
SD1Lrigidumcompa TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTACATAAA
Gyp1YesoHills   TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTACATAAA
400Lrigidumrigid TTGTTTGTATCAATGAACTGGCCCATGATCAAAATTTCTTTATCAAACATGGAAATAGAAATTTTACATAAA
162Ldecumbens    TTGTTTGTATCAATGAACTGGCCCATCATAAAAATTTGTTTATGAAACATGGAAATCGAAATTCTCCATAAA
401Lintercursum  TTGTTTGTATGAATGAACTGGCCCATGATAAAAATTTCTTTATCAAACATGGAAATACAAATTTTCCATAAA
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                 6777777777788888888889999999999000000000011111111112222222222333333334
Taxon/Node       9012345678901234567890123456789012345678901234567890123456789012345678
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005Limbricatum   TGAT------CAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
006Lbahamense    TGATCAAAT-CAAGGGGTAAAAAACTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTTTATCAGCAAGG
007Lbahamense    TGATCAAAT-CAAGGGGTAAAAAACTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTTTATCAGCAAGG
009Lschiedeanum  ----------------------------------------------------------------------
010Llewisii      TGATGAAAT-GAAGGGCTCAAAAAGTTCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
011Lsuffruticosu TGTTCAAAT-GAAGGGGTCAAAAAGTTCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
012Lstrictum     TGTTCAAAT-GAAGGGGTCAAAAAGTTCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
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022Hclevelandii  TGATCAAAG-GCAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
025Hdisjunctum   TGATCAAAG-GAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
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036Lrupestre     TGATCAAAT-CAAGGGGTAAAAAACTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTTTATCAGCGAGG
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038Llongipes     TGATCAAAT-GAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
040Lcruciata     TGATCAAAT-GAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
041Laristatum    TGATCAA------GGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
042Lflagellare   TGATCAAAT-CAAGGGGTAAAAAACTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTTTATCAGCAAGG
044Reinwardtiain TGATGAAAT-GAAGGGGTCAAAAAGTTCGTTTATTTCGATTATGAAATGTTCAG-AAAATATATCAGCAAGG
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048Hmicranthum   TGATCAAAT-GAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
049Cselaginoides ----------------------------------------------------------------------
055Laethiopicum  TGATCAAAT-GAAGGGGTAAAAAAGTGCATTTATGTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
059Lcomptonii    TGATCAAAT-GAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
061Lesterhuysena TGATCAAAT-GAAGGGGTMAAAAAGTGCATTTATGTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
066Ltenue        TGATCAAAT-GAAGGGGTCAAAAAGTTCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
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067Lthunbergii   TGATCAAAT-GAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
072Ltrigynum     TGATCAAAT-GAAGGGGTCAAAAAGTTCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
075Lstriatum     TGATCAAAT-GAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
076Lmarginale    TGCTGAAAT-GAAGGGCTCAAAAAGTTCATTTATTTCGATTATGAAATGTTCAG-AAAGTATAACAGCAAGG
083Sdigynum      TGATCAAAT-GAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
089Llittorale    ----------------------------------------------------------------------
091Loligophyllum ----------------------------------------------------------------------
123Lkingii       TGATCAAAT-GAAGGGGTAAAAAAATCCGTTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
124Lfloridanum   TGATCAAAT-GAAGGGG-AAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
130Lvirginianum  TGATCAAAT-GAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
132Lsulcatum     TGAT------CAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
137Lvolkensii    TGTTCAAAC-GAAGGGGTCAAAAAGTTCATTTATTTCGATTATGAAATGTTCAG-AAAGTGTATCAGCAAGG
139Lholstii      TGTTCAAAC-GAAGGGGTCAAAAAGTTCATTTATTTCGATTATGAAATGTTCAG-AAAGTGTATCAGCAAGG
143Lorientale    TGATCAAAT-GAAGGGGTCAAAAAGTTCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
146Lnervosum     TGATGAAAT-GAAGGGCTCAAAAAGTTCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
148Lhypericifoli TGATGAAAT-GAAGGGCTCAAAAAGTTCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
149Lflavum       TGATCAAAT-GAAGGGGTCAAAAAGTTCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
151Lcatharticum  TGATCAAAT-GAGGGGAACAAAAAGTGCATTTA------TTATGAAATGTTCAC-AAAGTATATCAGCAAGG
156Ltenuifolium  TGTTCAAAT-GAAGGGGTCAAAAAGTTCATTTATTTTGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
157Ltauricum     TGATCAAAT-GAAGGGGTCAAAAAGTTCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
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171Rlinoides     TAATGAAAT-GAAGGGGTCAAAAAGTGCATTTATTTAGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
183Lpuberulum    TGAT------CAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
184Lvernale      TGAT------CAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
186Llundellii    TGAT------CAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
187Lcremnophyllu ----------------------------------------------------------------------
193Lbrevifolium  ----------------------------------------------------------------------
194Lprostratum   ----------------------------------------------------------------------
195Lchamissonis  ----------------------------------------------------------------------
196Lerigeroides  ----------------------------------------------------------------------
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200Lcarneum      ------------------------------------------------------------------------
201Lpringlei     TGATCAAATCAAGGGGTAAAAAAACTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
206Cselaginoides ------------------------------------------------------------------------
210bLmacraeimacr ------------------------------------------------------------------------
215Lchamissonis  ------------------------------------------------------------------------
219Lscoparium    ------------------------------------------------------------------------
220Cselaginoides ------------------------------------------------------------------------
221Lburkartii    ------------------------------------------------------------------------
223Lkingii       TGATCAAAT-GAAGGGGTAAAAAAATGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
224Lmonogynum    TGCTGAAAT-GAAGGGCTAACAAAGTTCATTTATTTCGATTATGAAATGTTCAG-AAAGTATAACAGCAAGG
228Lneomexicanum TGATCAAAT-GAAGGGGTAAAAAAATGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
231Lcompactum    TGAT------CAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGAAAGG
232Laustrale     TGAT------CAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
233Laristatum    TGAT------CAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCA-GAAAGTATATCAGCAAGG
234Lrigidumberla TGAT------CAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGAAAGG
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259Lheterostylum TGATCAAAT-GAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
266Lcarteri      ------------------------------------------------------------------------
268Larenicola    TGATCAAAT-CAAGGGGTAAAAAACTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTTTATCAGCAAGG
269Lwestii       TGATCAAAT-GAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
270Lorizabae     TGATCAAAT-GAAGGGGTAAAAAAGTGCATTTATTTTGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
291Lrigidumfilif TGAT------CAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGAAAGG
293Lquatemalense TGATCAAAT-GAAGGGGTAAAAAAGTGCATTTATTTTGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
294Lcatharticum  TGATCAAAT-G-AGGGGACAAAAAGTGCATTTA------TTATGAAATGTTCAC-AAAGTATATCAGCAAGG
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307Lalatum       TGATCAA-----GGGGTAAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAACAAGG
310Llasiocarpum  TGATCAAAT-CAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGA
244Lhudsonioides ------------------------------------------------------------------------
214Lbienne       TGCTGAAAT-GAAGGGCTCAAAAAGTTCATTTATTTCGATTATGAAATGTTCAG-AAAGTATAACAGCAAGG
249LinumBrackenr TGAT------CAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
250Lhudsonioides TGAT------CAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAACAAGG
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F2Lcruciata      TGATCAAAT-CAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
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L41Lviscosum     TGATGAAAT-GAAGGGCTCAAAAAGTTCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
L43Lcatharticum  TGATCAAAT-G-AGGGGACAAAAAGTGCATTTA------TTATGAAATGTTCAC-AAAGTATATCAGCAAGG
L57Lflavum       TGATCAAAT-GAAGGGGTCAAAAAGTTCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
LPB2Loligophyllu ------------------------------------------------------------------------
PM1983Sdigynum   TGATCAAAT-GAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
SA1Lafricanum    TGATCAAAT-GAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
SA10Lesterhuysen TGATCAAAT-GAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
SA11LinumAgulhas TGATCAAAT-GAAGGGGTAAAAAAGTGCATTTATGTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
SA12Laethiopicum ------------------------------------------------------------------------
SA13LinumspWindb TGATCAAATGAAGGGGTAAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
SA14Lvillosum    TGATCAAAT-GAAGGGGTAAAAAAGTGCATTTATGTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
SA17Lthesioides  TGATCAAAT-GAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
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SA4Lgracile      TGATCAAAT-GAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
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SA8Ladustum      TGATCAAAT-GAAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
SA9Lesterhuysena TGATCAAAT-GAAGGGGTAAAAAAGTGCATTTATGTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
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Gyp1YesoHills    TGATC------AAGGGGTAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG
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162Ldecumbens    TGCTGAAAT-GAAGGGCTAAAAAAGTGAATTTATTTCGATTATGAAATGTTCAG-AAAGTATAACAGCAAGG
401Lintercursum  TGATCAAATGAAGGGGTAAAAAAAGTGCATTTATTTCGATTATGAAATGTTCAG-AAAGTATATCAGCAAGG


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                 444444444555555555566666666667777777777888888888899999999990000000000111
Taxon/Node       123456789012345678901234567890123456789012345678901234567890123456789012
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005Limbricatum   ATTGAGCAATTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
006Lbahamense    ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
007Lbahamense    ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
009Lschiedeanum  ------------------------------------------------------------------------
010Llewisii      ATTGAGCAACCAAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
011Lsuffruticosu ATTGAGCAACTGAGTATTTCACTTTCTTCTGAGGTATGGGG-----TTCCGTCTA-GGGAAAACTGAGCTTT
012Lstrictum     ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCCGTCTA-GGGAAAACTGAGCTTT
013Lnarbonense   ATTGAGCAACCAAGTATTCCACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
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025Hdisjunctum   ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTTTGTCTA-GGGAAAATTGAGCTTT
027Lberlandierib ATTGAGCAATTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGACCTTT
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032Lhudsonioides ATTGAGCAATTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
034Lrupestre     ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
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038Llongipes     ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
040Lcruciata     ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
041Laristatum    ATTGAGCAATTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
042Lflagellare   ATTGAGCAACTGAGTATTCAACTTTTTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
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047Hdrymarioides ATTGAACAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTTTGTCTA-GGGAAAACTGAGCTTT
048Hmicranthum   ATTGAGCAACTGAGTATTCTACTTTCTTCTGAGGTATGGGG-----TTTTGTCTA-GGGAAAATTGAGCTTT
049Cselaginoides ------------------------------------------------------------------------
055Laethiopicum  ATTGAGCAACTGAGTATTCAACTTTCTTCTAAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
059Lcomptonii    ATTGAGCAACTGAGTATTCAACTTTCTTCTAAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
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075Lstriatum     ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
076Lmarginale    ATTGAGCAACCAAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
083Sdigynum      ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
089Llittorale    ------------------------------------------------------------------------
091Loligophyllum ------------------------------------------------------------------------
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124Lfloridanum   ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
130Lvirginianum  ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
132Lsulcatum     ATTGAGCAATTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
137Lvolkensii    ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCCGTCTA-GGGAAAACGGAGCTTT
139Lholstii      ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCCGTCTA-GGGAAAACGGAGCTTT
143Lorientale    ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCCGTCTA-GGGAAAACGGAGCTTT
146Lnervosum     ATTGAGCAACCAAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
148Lhypericifoli ATTGAGCAACCAAGTATTCAACTTTCTTCTGAGGTATGGGG-----CTCCGTCTA-GGGAAAACGGAGCTTT
149Lflavum       ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCCGTCTA-GGGAAAACGGAGCTTT
151Lcatharticum  ATTGAGCAACGGAGTATTCCACTTTCTTCTGAGGTATGGG------TTCCGTCTA-GGGAAAACTGAGCTTT
156Ltenuifolium  ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCCGTCTA-GGGAAAACTGAGCTTT
157Ltauricum     ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCCGTCTA-GGGAAAACGGAGCTTT
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164Larboreum     ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCCGTCTA-GGGAAAACGGAGCTTT
165Lrzedowskii   ATTGAGCAACCAAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
171Rlinoides     ATTGAGCAAACGAGTATACAACTTTCTTCTGAGGTATGGGG-----TTCCGTCTA-GAGAAAACTGAGTTTT
183Lpuberulum    ATTGAGCAATTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
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186Llundellii  ATTGAGCAATTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
187Lcremnophyllu ------------------------------------------------------------------------
193Lbrevifolium ------------------------------------------------------------------------
194Lprostratum ------------------------------------------------------------------------
195Lchamissonis ------------------------------------------------------------------------
196Lerigeroides ------------------------------------------------------------------------
200Lcarneum    ------------------------------------------------------------------------
201Lpringlei   ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTAGGGGAAAACTGAGCTTT
206Cselaginoides ------------------------------------------------------------------------
210bLmacraeimacr ------------------------------------------------------------------------
215Lchamissonis ------------------------------------------------------------------------
219Lscoparium  ------------------------------------------------------------------------
220Cselaginoides ------------------------------------------------------------------------
221Lburkartii  ------------------------------------------------------------------------
223Lkingii     ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTAGAGGAAAACTGAGCTTT
224Lmonogynum  ATTGAGCAACCAAGTATTCAACTTTCTTCTGAGGTATGGGGTGGAGTTCTGTCTAGGGGAAAACTGAGCTTT
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231Lcompactum  ATTGAGCAATTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGACCTTT
232Laustrale   ATTGAGCAATTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
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246LrigidumKerr ATTGAGCAATTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGACCTTT
253Lelongatum  ATTGAGCAATTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGACCTTT
256Lmedium     ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
257Lmedium     ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
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259Lheterostylum ATTGAGCAACTGAGTATTCAACTTTCTTCTAAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
266Lcarteri    ------------------------------------------------------------------------
268Larenicola  ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
269Lwestii     ATTCAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
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310Llasiocarpum ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTAGGGGAAAACTGAGCTTT
244Lhudsonioides ------------------------------------------------------------------------
214Lbienne     ATTGAGCAACCAAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
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250Lhudsonioides ATTGAGCAATTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
A1Lrigidumpuberu ATTGAGCAATTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGACCTTT
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F2Lcruciata    ATTGAGCAACTGAGTATTCAACTTTCTTGTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
F5Lnelsonii    ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
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L29Lmaritimum  ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTACGGGG-----TTCCGTCTA-GGGAAAATTGAGCTTT
L4Lusitatissimum ATTGAGCAACCAAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
L41Lviscosum   ATTGAGCAACCAAGTATTCAACTTTCTTCTGAGGTATGGGG-----CTCCGTCTA-GGGAAAACGGAGCTTT
L43Lcatharticum ATTGAGCAACGGAGTATTCCACTTTCTTCTGAGGTATGGG------TTCCGTCTA-GGGAAAACTGAGCTTT
L57Lflavum     ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCCGTCTA-GGGAAAACGGAGCTTT
LPB2Loligophyllu ------------------------------------------------------------------------
PM1983Sdigynum ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
SA1Lafricanum  ATTGAGCAACTGAGTATTCAACTTTCTTCTAAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
SA10Lesterhuysen ATTGAGCAACTGAGTATTCAACTTTCTTCTAAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
SA11LinumAgulhas ATTGAGCAACTGAGTATTCAACTTTCTTCTAAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
SA12Laethiopicum ------------------------------------------------------------------------
SA13LinumspWindb ATTGAGCAACTGAGTATTCAACTTTCTTCTAAGGTATGGGG-----TTCTGTCTAGGGGAAAACTGAGCTTT
SA14Lvillosum  ATTGAGCAACTGAGTATTCAACTTTCTTCTAAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
SA17Lthesioides ATTGAGCAACTGAGTATTCAACTTTCTTCTAAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
SA19Lcomptonii ATTGAGCAACTGAGTATTCAACTTTCTTCTAAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
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SA7Linumdehoop   ATTGAGCAACTGAGTATTCAACTTTCTTCTAAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
SA8Ladustum      ATTGAGCAACTGAGTATTCAACTTTCTTCTAAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
SA9Lesterhuysena ATTGAGCAACTGAGTATTCAACTTTCTTCTAAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
SD1Lrigidumcompa ATTGAGCAATTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTAGGGGAAAACTGAGCTTT
Gyp1YesoHills    ATTGAGCAATTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTAGGAGAAAACTGAGCTTT
400Lrigidumrigid ATTGAGCAATTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTAGGGGAAAACTGAGCTTT
162Ldecumbens    ATTGAGCAACCAAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTA-GGGAAAACTGAGCTTT
401Lintercursum  ATTGAGCAACTGAGTATTCAACTTTCTTCTGAGGTATGGGG-----TTCTGTCTAGGGGAAAACTGAGCTTT


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Taxon/Node       345678901234567890123456789012345678901234567890123456789012345678901234
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006Lbahamense    AGTTGTATACATAGGAAAAGCCGTGTGCAATGAAAATTGCAAGCACGGATACCTTACATAATGAATCTGATA
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009Lschiedeanum  ------------------------------------------------ATACCTTACATAATGAATCTGATA
010Llewisii      AGTTGTATACATAGGAAAAGCCGTGTGCAATGAAAACTGCAAGCACGGATACCCTACATAATGAATCTGATA
011Lsuffruticosu AGTTGTATACATAGGAAAAGCCGTGTGCAATGAAAACTGCAAGCACGGATACCTTACATAATGAATCTGATA
012Lstrictum     AGTTGTATACATAGGAAAAGCCGTGTGCAATGAAAACTGCAAGCACGGATACCTTACATAATGAATCTGATA
013Lnarbonense   AGTTGTATACATAGGAAAAGCCGTGTGCAATGAAAACTGCAAGCACGGATACCTTACATAATGAATCTGATA
022Hclevelandii  AGTTGTATACATAGGAAAAGCCGTGTGCAATGAAAATTGCA-GCACGGATACCTTACATAA?GAATCTGATA
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038Llongipes     AGTTGTATACATAGGAAAAGCCGTGTGCAATGAAAATT----------ATACCTTACATAATGAATCTGATA
040Lcruciata     AGTTGTATACATAGGAAAAGCCGTGTGCAATGAAAATTGCAAGCACGGATACCTTACATAATGAATCTGATA
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089Llittorale    ------------------------------------------------ATACCTTACATAATGAATCTGATA
091Loligophyllum ------------------------------------------------ATACCTTACATAATGAATCTGATA
123Lkingii       AGTTGTATACATAGGAAAAGCCGTGTGCAATGAAAATTGCAAGCACGGATACCGTATATAATGAATCTAATA
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219Lscoparium    ------------------------------------------------ATACCTTACATAATGAATCTGATA
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224Lmonogynum    AGTTGTATACATAGGAAAAGCCGTGTGCAATGAAAACTGCAAG-----ATACCTTACATACTAAATCTGATA
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256Lmedium       AGTTGTATACATAGGAAAAGCCGTGTGCAATGAAAATTGCAAGCACGGATACCTTACATAATGAATCTGATA
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258Lquadrifolium AGTTGTATACATAGGAAAAGCCGTGTGCAATGAAAATTGCAAGCACGG------------------------
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SA13LinumspWindb AGTTGTATACATAGGAAAAGCCGTGTGCAATGAAAATTGCAAGCACGGATACCTTACATAATGAATCTGATA
SA14Lvillosum    AGTTGTATACATAGGAAAAGCCGTGTGCAATGAAAATTGCAAGCACGG----------TAATGAATCTGATA
SA17Lthesioides  AGTTGTATACATAGGAAAAGCCGTGTGCAATGAAAATTGCAAGCACGGATACCTTACATAATGAATCTGATA
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401Lintercursum  AGTTGTATACATAGGAAAAGCCGTGTGCAATGAAAATTGCAAGCACGGATACCTTACATAATGAATCTGATA


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Taxon/Node       567890123456789012345678901234567890123456789012345678901234567890123456
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001Lstriatum     GCTTTGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
005Limbricatum   GCTTCGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
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048Hmicranthum   GCTTTGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
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066Ltenue        GCTTTGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCTCAAAAAGATATTAAGAGAAGT
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075Lstriatum     GCTTTGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
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123Lkingii       GCTTTTATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
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184Lvernale      GCTTCGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
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193Lbrevifolium  GCTTTGATAGGGATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
194Lprostratum   GCTTTGATAGGGATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
195Lchamissonis  GCTTTGATAGGGATAATAACAGTCCTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
196Lerigeroides  GCTTTGATAGGGATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
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210bLmacraeimacr GCTTTGATAGGGATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
215Lchamissonis  GCTTTGATAGGGATAATAACAGTCCTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
219Lscoparium    GCTTTGATAGGGATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
220Cselaginoides GCTTTGATAGGGATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
221Lburkartii    GCTTTGATAGGGATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
223Lkingii       GCTTTGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
224Lmonogynum    GCCTTGGTAGGAATAATAACCGCACTTTTAGGAGCTACTTTAGCTCTTGCTCAAAAAGATATTAAGAAAAGT
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231Lcompactum    GCTTCGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
232Laustrale     GCTTCGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
233Laristatum    GCTTCGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
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258Lquadrifolium ------------------------------------------------------------------------
259Lheterostylum ------------------------------------------------------------------------
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269Lwestii       ACTTTGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCTCTTGCTCAAAAAGATATTAAGAGAAGT
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307Lalatum       GCTTCGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
310Llasiocarpum  GCTTCGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
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F6Ltenellum      GCTTCGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
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L4Lusitatissimum GCTTTGGTAGGAATAATAACCGTACTTTTAGGAGCTACTTTAGCTCTTGCTCAAAAAGATATTAAGAAAAGT
L41Lviscosum     GCTTTAGTAGGTATAATAACAGTACTTTTAGGGGCTACTTTAGCTCTTGCTCAAAAAGATATTAAGAGAAGT
L43Lcatharticum  GCTTTGATAGGTATAATAACAGTATTTTTAGGAGCTACTTTAGCGCTTGCTCAAAAAGATATTAAGAGAAGT
L57Lflavum       GCTTTGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCTCAAAAAGATATTAAGAGAAGT
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PM1983Sdigynum   GCTTTGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
SA1Lafricanum    GCTTTGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
SA10Lesterhuysen GCTTTGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
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SA12Laethiopicum GCTTTGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
SA13LinumspWindb GCTTTGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
SA14Lvillosum    GCTTTGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
SA17Lthesioides  GCTTTGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
SA19Lcomptonii   GCTTTGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
SA3Lacuticarpum  GCTTTGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
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SA6Lgracile      GCTTTGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
SA7Linumdehoop   GCTTTGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
SA8Ladustum      GCTTTGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
SA9Lesterhuysena GCTTTGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
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Gyp1YesoHills    GCTTCGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCGCAAAAAGATATTAAGAGAAGT
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162Ldecumbens     GCTTYGATAGGTATAATAACAGTACTTTTAGGAGCTACTTTAGCGCTTGCTCAAAAAGATATTAAGAGAAGT
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                 666666666666666666666666666666666666666666677777777777777777777777777777
                 555666666666677777777778888888888999999999900000000001111111111222222222
Taxon/Node       789012345678901234567890123456789012345678901234567890123456789012345678
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001Lstriatum     TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
005Limbricatum   TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
006Lbahamense    TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
007Lbahamense    TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
009Lschiedeanum  TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
010Llewisii      TTAGCCTATTCGACAATGTCTCAATTGGGTTATATGATCTTAGCTTTAGGTATGGGATCTTATCGGGCGGCA
011Lsuffruticosu TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
012Lstrictum     TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
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022Hclevelandii  TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
025Hdisjunctum   TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
027Lberlandierib TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
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032Lhudsonioides TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
034Lrupestre     TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
035Lrigidumrigid TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
036Lrupestre     TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
037Lmexicanum    TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
038Llongipes     TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
040Lcruciata     TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
041Laristatum    TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
042Lflagellare   TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
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055Laethiopicum  TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
059Lcomptonii    TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
061Lesterhuysena TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
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062Lheterostylum TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
067Lthunbergii   TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
072Ltrigynum     TTAGCCTATTCTACAATGTCTCAATTGGGTTATATGATGCTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
075Lstriatum     TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
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076Lmarginale   TTAGCCTATTCTACAATGTCTCAATTGGGTTATATGATGTTAGCTTTAGGAATGGGATCGTATCGGGCAGCG
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089Llittorale   TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
091Loligophyllum TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
123Lkingii      TTAGCCTATTCGACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
124Lfloridanum  TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
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184Lvernale     TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
186Llundellii   TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
187Lcremnophyllu TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
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220Cselaginoides TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
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224Lmonogynum   TTAGCCTATTCTACAATGTCTCAATTGGGTTATATGATGTTAGCTTTAGGAATGGGATCGTATCGGGCAGCG
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231Lcompactum   TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
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242Lrupestre    TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
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258Lquadrifolium ------------------------------------------------------------------------
259Lheterostylum ------------------------------------------------------------------------
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214Lbienne      TTAGCCTATTCTACAATGTCTCAATTAGGTTATATGATGTTAGCTTTAGGTATGGGATCTTATCGGGCAGCG
249LinumBrackenr TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
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A1Lrigidumpuberu TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
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F2Lcruciata      TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
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F6Ltenellum      TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
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L29Lmaritimum    TTAGCCTATTCTACAATGTCTCAATTGGGTTATATGATGCTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
L4Lusitatissimum TTAGCCTATTCTACAATGTCTCAATTAGGTTATATGATGTTAGCTTTAGGTATGGGATCTTATCGGGCAGCG
L41Lviscosum     TTAGCCTATTYTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCA
L43Lcatharticum  TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
L57Lflavum       TTAGCTTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
LPB2Loligophyllu TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
PM1983Sdigynum   TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGCTCGTATCGAGCGGCC
SA1Lafricanum    TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
SA10Lesterhuysen TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
SA11LinumAgulhas TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
SA12Laethiopicum TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
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SA14Lvillosum    TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
SA17Lthesioides  TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
SA19Lcomptonii   TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
SA3Lacuticarpum  TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
SA4Lgracile      TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
SA5Lgracile      TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
SA6Lgracile      TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
SA7Linumdehoop   TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
SA8Ladustum      TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
SA9Lesterhuysena TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
SD1Lrigidumcompa TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
Gyp1YesoHills    TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
400Lrigidumrigid TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
162Ldecumbens    TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC
401Lintercursum  TTAGCCTATTCTACAATGTCTCAATTGGGTTATACGATGTTAGCTTTAGGTATGGGATCTTATCGAGCGGCC


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                 233333333334444444444555555555566666666667777777777888888888899999999990
Taxon/Node       901234567890123456789012345678901234567890123456789012345678901234567890
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001Lstriatum     CTTTTTCATTTGATTACTCACGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
005Limbricatum   CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
006Lbahamense    CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
007Lbahamense    CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
009Lschiedeanum  CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
010Llewisii      CTTTTTCATTTGATTACTCATGCTTATTCAAAAGCATTATTATTTTTAGGATCCGGCTCCATTATCCATTCA
011Lsuffruticosu CTTTTTCATTTGATTACGCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
012Lstrictum     CTTTTTCATTTGATTACTCACGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
013Lnarbonense   CTTTTTCATTTGATTACTCATGCTTATTCGAAAGCATTATTATTTTTAGGATCTGGGTCTATTATTCATTCA
022Hclevelandii  CTTTTTCATTTGATTACGCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
025Hdisjunctum   CTTTTTCATTTGATTACGCATGCCTATTCGAAAGCCTTATTGTTTTTAGCATCTGGATCCATTATTCATTCA
027Lberlandierib CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
028Lberlandierif CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
032Lhudsonioides CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
034Lrupestre     CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
035Lrigidumrigid CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
036Lrupestre     CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
037Lmexicanum    CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
038Llongipes     CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTATTTTTAGGATCTGGATCCATTATTCATTCA
040Lcruciata     CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTATTTTTAGGATCTGGATCCATTATTCATTCA
041Laristatum    CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
042Lflagellare   CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
044Reinwardtiain CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCATTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
047Hdrymarioides CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
048Hmicranthum   CTTTTTCATTTGATTACGCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
049Cselaginoides CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
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055Laethiopicum  CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
059Lcomptonii    CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
061Lesterhuysena CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
066Ltenue        CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCTATTATTCATTCA
062Lheterostylum CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
067Lthunbergii   CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
072Ltrigynum     CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCTATTATTCATTCA
075Lstriatum     CTTTTTCATTTGATTACTCACGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
076Lmarginale    CTTTTTCATTTGATTACTCATGCTTATTCGAAAGCATTATTATTTTTAGGATCTGGGTCTATTATTCATTCA
083Sdigynum      CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
089Llittorale    CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
091Loligophyllum CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
123Lkingii       CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCCGGATCCATTATTCATTCA
124Lfloridanum   CTTTTTCATTTGATTACTCACGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
130Lvirginianum  CTTTTTCATTTGATTACTCACGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
132Lsulcatum     CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
137Lvolkensii    CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
139Lholstii      CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
143Lorientale    CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCTATTATTCATTCA
146Lnervosum     CTTTTTCATTTGATTACTCATGCTTATTCAAAAGCATTATTATTTTTAGGATCTGGATCTATTATTCATTCA
148Lhypericifoli CTTTTTCATTTGATTACTCATGCTTATTCGAAAGCATTGTTGTTTTTAGGATCGGGATCCATTATTCATTCA
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151Lcatharticum  CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
156Ltenuifolium  CTTTTTCATTTGATTACGCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
157Ltauricum     CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCTATTATTCATTCA
163Lelegans      CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCTATTATTCATTCA
164Larboreum     CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCTATTATTCATTCA
165Lrzedowskii   CTTTTTCATTTGATTACTCATGCTTATTCAAAAGCATTATTATTTTTAGGATCCGGCTCCATTATCCATTCA
171Rlinoides     CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGCTCTGGATCTATTATTCATTCA
183Lpuberulum    CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
184Lvernale      CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
186Llundellii    CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
187Lcremnophyllu CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
193Lbrevifolium  CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
194Lprostratum   CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
195Lchamissonis  CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGGTCCATTATTCATTCA
196Lerigeroides  CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGGTCCATTATTCATTCA
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206Cselaginoides CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
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215Lchamissonis  CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGGTCCATTATTCATTCA
219Lscoparium    CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
220Cselaginoides CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
221Lburkartii    CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
223Lkingii       CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCCGGATCCATTATTCATTCA
224Lmonogynum    CTTTTTCATTTGATTACTCATGCTTATTCGAAAGCATTATTATTTTTAGGATCTGGGTCTATTATTCATTCA
228Lneomexicanum CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCCGGATCCATTATTCATTCA
231Lcompactum    CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCTATTATTCATTCA
232Laustrale     CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
233Laristatum    CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
234Lrigidumberla CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
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238Lpratense     CTTTTTCATTTGATTACTCATGCTTATTCAAAAGCATTATTATTTTTAGGATCCGGCTCCATTATCCATTCA
241Lrigidumberla CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
242Lrupestre     CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
246LrigidumKerr  CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
253Lelongatum    CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
256Lmedium       CTTTTTCATTTGATTACTCACGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
257Lmedium       CTTTTTCATTTGATTACTCACGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
258Lquadrifolium ------------------------------------------------------------------------
259Lheterostylum ------------------------------------------------------------------------
266Lcarteri      CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
268Larenicola    CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
269Lwestii       CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCATTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
270Lorizabae     CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCTATTATTCATTCA
291Lrigidumfilif CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
293Lquatemalense CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
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294Lcatharticum  CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
302Lsubteres     CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
307Lalatum       CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
310Llasiocarpum  CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
244Lhudsonioides CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
214Lbienne       CTTTTTCATTTGATTACTCATGCTTATTCGAAAGCATTATTATTTTTAGGATCTGGTTCTATTATTCATTCA
249LinumBrackenr CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
250Lhudsonioides CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
A1Lrigidumpuberu CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
F1Lbahamensecora CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
F2Lcruciata      CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
F5Lnelsonii      CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
F6Ltenellum      CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
F7Lscabrellum    CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
L17Ltenuifolium  CTTTTTCATTTGATTACGCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
L29Lmaritimum    CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCTATTATTCATTCA
L4Lusitatissimum CTTTTTCATTTGATTACTCATGCTTATTCGAAAGCATTATTATTTTTAGGATCTGGTTCTATTATTCATTCA
L41Lviscosum     CTTTTTCATTTGATTACTCATGCTTATTCGAAAGCATTATTGTTTTTAGGGTCGGGATCCATTATTCATTCA
L43Lcatharticum  CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
L57Lflavum       CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCTATTATTCATTCA
LPB2Loligophyllu CTTTTTCATTTGATTACTCATGCCTATTCAAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
PM1983Sdigynum   CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
SA1Lafricanum    CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
SA10Lesterhuysen CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
SA11LinumAgulhas CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
SA12Laethiopicum CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
SA13LinumspWindb CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
SA14Lvillosum    CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
SA17Lthesioides  CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
SA19Lcomptonii   CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
SA3Lacuticarpum  CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
SA4Lgracile      CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
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SA7Linumdehoop   CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
SA8Ladustum      CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
SA9Lesterhuysena CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
SD1Lrigidumcompa CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
Gyp1YesoHills    CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
400Lrigidumrigid CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
162Ldecumbens    CTTTTTCATTTGATTACTCATGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA
401Lintercursum  CTTTTTCATTTGATTACTCACGCCTATTCGAAAGCCTTATTGTTTTTAGGATCTGGATCCATTATTCATTCA


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                 888888888888888888888888888888888888888888888888888888888888888888888888
                 000000000111111111122222222223333333333444444444455555555556666666666777
Taxon/Node       123456789012345678901234567890123456789012345678901234567890123456789012
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005Limbricatum   ATGGAAAGTATTGTTGGCTATTCTCCAGATAAGAGTCAAAATATGGTTCTTATGGGGGGTTTAAGAAAACAC
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027Lberlandierib ATGGAAAGTATTGTTGGCTATTCTCCAGATAAGAGTCAAAATATGGTTCTTATGGGTGGTTTACGAAAACAC
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037Lmexicanum    ATGGAAAGTATTGTTGGCTATTCTCCAGATAAGAGTCAAAATATGGTTCTTATGGGGGGTTTAAGAAAACAC
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089Llittorale     ATGGAAAGTATTGTTGGTTATTCTCCAGATAAGAGTCAAAATATGGTTCTTATGGGTGGTTTAAGAAAACAC
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Taxon/Node       34567890123456789012345678901234567890123456789012345678901234
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L4Lusitatissimum GTTCCAGTTACCCAAAGTGCTTTTTTATTAGGAACTCTTTCGCTTTGTGGTATTCCTCCCTTCGCTTGCTTT
L41Lviscosum     GTTCCAATTACAAAAATTTCTTTTTTTTTAGGAACTCTTTCGCTTTCTGGTATTCCGCCCCTTGCTTGCTTT
L43Lcatharticum  GTACCAATTACAAAAACTGCTTTTTTATTAGGAACTCTTTCACTTTGTGGTGTTCCGCCACTCGCCTGCTTT
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SA14Lvillosum    GTGCCAATTACAAAAACTGCTTTTTTATTAGGAACTCTTTCACTTTGTGGTGTTCCGCCCCTCGCCTGCTTT
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Taxon/Node       567890123456789012345678901234567890123456789012345678901234567890123456
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038Llongipes     TGGTCCAAAGACGAAATTCTTAATGCTAGTTGGTTGTATTCACCTATTTTTCAGAGAAACCCTGG-AATTAA
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091Loligophyllum TGGTCCAAAGACGAAATTCTTAATGCTAGTTGGTTGTATTCACCTATTTTTCAGAGAAACCCTGG-AATTAA
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201Lpringlei     TGGTCCAAAGACGAAATTCTTAATGCTAGTTGGTTGTATTCACCTATTTTTCAGAGAAACCCTGG-AATTAA
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221Lburkartii    TGGTCCAAAGATGAAATTCTTAATGCTAGTTGGTTGTATTCACCTATTTT----------------------
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228Lneomexicanum TGGTCCAAAGACGAAATTCTTAATGCTAGTTGGTTGTATTCACCTATTTTTCAGAGAAACCCTGG-AATTAA
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232Laustrale     TGGTCCAAAGACGAAATTCTTAATGCTAGTTGGTTCTATTCACCTATTTT----------------------
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Gyp1YesoHills    TGGTCCAAAGACGAAATTCTTAATGCTAGTTGGTTGTATTCACCTATTTT----------------------
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Taxon/Node       789012345678901234567890123456789012345678901234567890123456789012345678
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032Lhudsonioides ------------------------------------------------------------------------
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091Loligophyllum C-AAAGGGGCAATCCTGAGCCAAATCC-TGTTTT-CCGTTCCTAAAGACAGAATAAAA-CAGGATAGGTGCA
123Lkingii       C-AAAGGGGCAATCCTGAGCCAAATCC-TGTTTT-CCGTTCCTAAAGACAGAATAAAA-CAGGATAGGTGCA
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148Lhypericifoli C-AAAGGGGCAATCCTGAGCCAAATCC-TGTTTT-TCGTTC------AAAGAATAAAA-CAGGATAGGTGCA
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228Lneomexicanum C-AAAGGGGCAATCCTGAGCCAAATCC-TGTTTT-CCGTTCCTAAAGACAGAATAAAA-CAGGATAGGTGCA
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307Lalatum       -------------------------------------------------------------GGATAGGTGCA
310Llasiocarpum  ------------------------------------------------------------------------
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L41Lviscosum     C-AAAGGGGCAATCCTGAGCCAAATCC-TGTTTT-CCGTTC------AGAGAATAAAA-CAGGATAGGTGCA
L43Lcatharticum  C-AAAGGGGCAATCCTGAGCCAAATCC-TGTTTT-CCGTTCCTAAAGACAGAATAAAA-CAGGATAGGTGCA
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SA9Lesterhuysena C-AAAGGGGCAATCCTGAGCCAAATCC-TGTTTT-CCGTTCCTAAAGACAGAATAAAA-CAGGATAGGTGCA
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162Ldecumbens     ----------------------GGTCC-TGTTCTTACGTGCATAAAGACAGAATAAACACAGGATAGGTGCA
401Lintercursum   ------------------------------------------------------------------------


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Taxon/Node       901234567890123456789012345678901234567890123456789012345678901234567890
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005Limbricatum   GAGACTCGATGG-AAGCTGTTCTAACAAATGGAGGTGACCGCCTTGCGTTGGTAAAGTAAAGGAATCCTTTG
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032Lhudsonioides ------------------------------------------------------------------------
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037Lmexicanum    GAGACTCGATGG-AAGCTGTTCTAACAAATGGAGGTGACCGCCTTGCGTTGGTAAAGTAAAGGAATCCTTCG
038Llongipes     GAGACTCGATGG-AAGCTGTTCTAACAAATGGAGGTGACCGCCTTGCGTTGGTAAAGTAAAGGAATCCTTCG
040Lcruciata     GAGACTCGATGG-AAGCTGTTCTAACAAATGGAGGTGACCGCCTTGCGTTGGTAAAGTAAAGGAATCCTTCG
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067Lthunbergii   ------------------------------------------------------------------------
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132Lsulcatum     ------------------------------------------------------------------------
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171Rlinoides     ------------------------------------------------------------------------
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194Lprostratum   GAGACTCGATGG-AAGCTGTTCTAACAAATGGAGGTGACCGCCTTGCGTTGGTAAAGGAAAGTAATCCTTCG
195Lchamissonis  GAGACTCGATGG-AAGCTGTTCTAACAAATGGAGGTGACCGCCTTGCGTTGGTAAAGGAAAGTAATCCTTCG
196Lerigeroides  ------------------------------------------------------------------------
200Lcarneum      GAGACTCGATGG-AAGCTGTTCTAACAAATGGAGGTGACCGCCTTGCGTTGGTAAAGGAAAGTAATCCTTCG
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231Lcompactum    GAGACTCGATGG-AAGCTGTTCTAACAAATGGAGGTGACCGCCTTGCGTTGGTAAAGTAAAGGAATCCTTCG
232Laustrale     GAGACTCGATGG-AAGCTGTTCTAACAAATGGAGGTGACCGCCTTGCGTTGGTAAAGTAAAGGAATCCTTCG
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246LrigidumKerr  GAGACTCGATGG-AAGCTGTTCTAACAAATGGAGGTGACCGCCTTGCGTTGGTAAAGTAAAGGAATCCTTCG
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266Lcarteri      GAGACTCGATGG-AAGCTGTTCTAACAAATGGAGGTGACCGCCTTGCGTTGGTAAAGTAAAGGAATCCTTCG
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244Lhudsonioides ------------------------------------------------------------------------
214Lbienne       GAGACTCGATGG-AAGCTGTTCTAACAAATGGAGTTGACCACTTTACTTTGGTAAAGGAAAGGAATTCTTCG
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401Lintercursum  ------------------------------------------------------------------------


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Taxon/Node       123456789012345678901234567890123456789012345678901234567890123456789012
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055Laethiopicum  ATGATTAATGATAACTAACCCGAATCCTTCAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
059Lcomptonii    ATGATTAATGATAACTAACCCGAATCCTTAAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
061Lesterhuysena ATGATTAATGATAACTAACCCGAATCCTTCAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
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072Ltrigynum     ATGATTAATGATAA----CCCGAATCTCTAAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
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083Sdigynum      ATGATTAATGATAACTAACCCGAATCTTTTAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAACCGAAT
089Llittorale    ATGATTAATGATAACTAACCCGAATCCTTAAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
091Loligophyllum ATGATTAATGATAACTAACCCGAATCCTTAAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
123Lkingii       ATGATTAATGATAACTAACCCGAATCCTTTAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATTGAAT
124Lfloridanum   ATGATTAATGATAACTAACCCGAATCCTTAAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
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132Lsulcatum     ------------------------------------------------------------------------
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139Lholstii      ATGATTAATGATAA----CCCGAACCCCTTAAAAAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
143Lorientale    ATGATTAATGATAA----CCCGAAT------------------------------TGAAGAAAGAATCGAAT
146Lnervosum     ATGATTAATGATAA----TCCGAATCCGTA--AGGGTTTTGAATCGATCCCAAATTGAAGAAAGAACCAAAT
148Lhypericifoli -----------------------------------------------TTCAAAATTGAAGAAAGAACCGAAT
149Lflavum       ATGATTAATGATAA----CCCGAAT------------------------------TGAAGAAAGAATCGAAT
151Lcatharticum  --------------------------------------------------------AAAGAAAGAATCGAAT
156Ltenuifolium  ATGATTAATGATAA----CCCGAACCCCTAAAAAAGTTTTGG------------------------------
157Ltauricum     ATGATTAATGATAA----CCCGAA------------------------------TTGAAGAAAGAATCGAAT
163Lelegans      ATGATTAATGATAA----CCCGAATT------------------------------GAAGAAAGAATCGAAT
164Larboreum     ATGATTAATGATAA----CCCGAA------------------------------TTGAAGAAAGAATCGAAT
165Lrzedowskii   ATGATTAATCATAA----CCCGAATCCGGAAAAGGGTTTTGAATGGATCCCAAATTGAAGAAAGAACCGAAT
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184Lvernale      ATGATTAATGATAACTAACCCGAATCCTTAAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
186Llundellii    -------------------------------------------------------------------CGAAT
187Lcremnophyllu ATGATTAATGATAACTAACCCGAATCCTTAAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
193Lbrevifolium  ---------------------------------GAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
194Lprostratum   ATGATTAATGATAACTAACCCGAATCCTTAAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
195Lchamissonis  ATGATTAATGATAACTAACCCGAATCCTTTAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
196Lerigeroides  ------------------------------------------------------------------------
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220Cselaginoides ATGATTAATGATAACTAACCCGAATCCTTA-AAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
221Lburkartii    ATGATTAATGATAACTAACCCGAATCCTTAAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
223Lkingii       ATGATTAATGATAACTAACCCGAATCCTTTAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATTGAAT
224Lmonogynum    ATGATTAATGATAA----CCCGAATCCGTA---AAGTTTTGAATCGATTCCAAATTGAAGAAAGAACCGAAT
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231Lcompactum    ATGATTAATGATAACTAACCCGAATCCTTAAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
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241Lrigidumberla ATGATTAATGATAACTAACCCGAATCCTTAAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
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256Lmedium       ATGATTAATGATAACTAACCCGAATCCTTAAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
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269Lwestii       ATGATTAATGATAACTAACCCGAATCCTTAAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
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293Lquatemalense ATGATTAATGATAACTAACCCGAATCCTTCAAATCGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
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302Lsubteres     ATGATTAATGATAACTAACCCGAATCCTTAAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
307Lalatum       ATGATTAATGATAACTAACCCGAATCCTTAAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
310Llasiocarpum  ------------------------------------------------------------------------
244Lhudsonioides ------------------------------------------------------------------------
214Lbienne       ATGATTAATGAT----AACCCGAATCCGTAAAAAAGTTTTGAATCGATTCCAAATTGAAGAAAGAACCGAAT
249LinumBrackenr ATGATTAATGATAACTAACCCGAATCCTTAAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAAGCGAAT
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F6Ltenellum      ATGATTAATGATAACTAACCCGAATCCTTAAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
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L17Ltenuifolium  ATGATTAATGATAA----CCCGAACCCCTAAAAAAGTTTTGG------------------------------
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L41Lviscosum     ------------------------------------------------TTCAAATTGAAGAAAGAACCGAAT
L43Lcatharticum  --------------------------------------------------------AAAGAAAGAATCGAAT
L57Lflavum       ATGATTAATGATAA----CCCGAAT------------------------------TGAAGAAAGAATCGAAT
LPB2Loligophyllu ATGATTAATGATAACTAACCCGAATCCTTAAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
PM1983Sdigynum   ATGATTAATGATAACTAACCCGAATCTTTTAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAACCGAAT
SA1Lafricanum    ATGATTAATGATAACTAACCCGAATCCTTAAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
SA10Lesterhuysen ATGATTAATGATAACTAACCCGAATCCTTCAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
SA11LinumAgulhas ATGATTAATGATAACTAACCCGAATCCTTCAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
SA12Laethiopicum ATGATTAATGATAACTAACCCGAATCCTTCAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
SA13LinumspWindb ATGATTAATGATAACTAACCCGAATCCTTA-AAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
SA14Lvillosum    ATGATTAATGATAACTAACCCGAATCCTTCAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
SA17Lthesioides  ATGATTAATGATAACTAACCCGAATCCTTAAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
SA19Lcomptonii   ATGATTAATGATAACTAACCCGAATCCTTAAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
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Gyp1YesoHills    ATGATTAATGATAACTAACCCGAATCCTTTAAAGAGTTTTGGATCGATTCCAAATTGAAGAAAGAATCGAAT
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162Ldecumbens    ATGATTAATGATAA----CCCGAATCCGTCAAAAGGTTTTGAATCGATTCCAAATTGAAGAAAGAACCTAAT
401Lintercursum  ------------------------------------------------------------------------


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                 333333333333333333333333333333333333333333333333333333333333333333333333
                 000001111111111222222222233333333334444444444555555555566666666667777777
Taxon/Node       567890123456789012345678901234567890123456789012345678901234567890123456
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005Limbricatum   ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
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011Lsuffruticosu -------------------------------------------------TCGGACGAGAATAAAGATAGAGT
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027Lberlandierib ------------------------------------------------------------------------
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032Lhudsonioides ------------------------------------------------------------------------
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038Llongipes     ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
040Lcruciata     ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
041Laristatum    ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
042Lflagellare   ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
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047Hdrymarioides ---------------AATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACAAGAATAAAGATAGAGT
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089Llittorale   ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
091Loligophyllum ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
123Lkingii      ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
124Lfloridanum  ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
130Lvirginianum ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
132Lsulcatum    ------------------------------------------------------------------------
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156Ltenuifolium -------------------------------------------------TCGGACGAGAATAAAGATAGAGT
157Ltauricum    ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACGGATTAATCGGACGAGAATAAAGATAGAGT
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171Rlinoides    ------------------------------------------------------------------------
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193Lbrevifolium ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
194Lprostratum  ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
195Lchamissonis ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
196Lerigeroides ------------------------------------------------------------------------
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201Lpringlei    ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
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221Lburkartii   ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
223Lkingii      ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
224Lmonogynum   ATGAATTGATCAAATAATTGACTCCAAAGTCTGATAGATAACGGATTAATTGGACGAGAACAAAGATAGAGT
228Lneomexicanum ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
231Lcompactum   ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
232Laustrale    ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
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236Lrigidumberla ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
238Lpratense    TTGAATTGATCAAATAATTCACTCCAGAGTCTGATAGATAACGGATTAATTGGACGAGAATAAAGATAGAGT
241Lrigidumberla ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
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258Lquadrifolium ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
259Lheterostylum ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
266Lcarteri     ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
268Larenicola   ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
269Lwestii      ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
270Lorizabae    ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
291Lrigidumfilif ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
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294Lcatharticum ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACGGATTAATCGGACGAGAATAAAGATAGAGT
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307Lalatum      ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
310Llasiocarpum ------------------------------------------------------------------------
244Lhudsonioides ------------------------------------------------------------------------
214Lbienne      ATGAATTGATCAAAAAATTGACTCCAAAGTCTGATAGATAACGGATTAATTGGACGAGAACAAAGATAGAGT
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250Lhudsonioides ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
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SA7Linumdehoop   ATTAATTGATCAAATAATTCACTCCAAAGTCTGATAGATAACAGATTAATCGGACGAGAATAAAGATAGAGT
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162Ldecumbens    ATGAATTGATCAAATAATTTACTCCAAAGTCTGATAGATAACGGATTAATTGGACGAGAACAAAGATAGAGT
401Lintercursum  ------------------------------------------------------------------------


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Taxon/Node       789012345678901234567890123456789012345678901234567890123456789012345678
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025Hdisjunctum   CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTATAAAAGTATTGGGGGGT
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032Lhudsonioides ------------------------------------------------------------------------
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072Ltrigynum     CTTTTCGTTAACGGTTTAAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
075Lstriatum     CTTTTCGTTAACGGTTTCAAATTCCGTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
076Lmarginale    CTTTTCGTTAACCAGTTTCAATTCCTTATCTTTCTCAT-TCAAAGAATTCTTTTACAAAAATCTTTGGAGTG
083Sdigynum      CTTTTCGTTAACGGTTTCAAATTCTTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTTTTGGGGGTT
089Llittorale    CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
091Loligophyllum CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
123Lkingii       CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGCATTCTTTTACAAAAGTATTTGGGGTG
124Lfloridanum   CTTTTCGTTAACGGTTTCAAATTCCGTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
130Lvirginianum  CTTTTCGTTAACGGTTTCAAATTCCGTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
132Lsulcatum     CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
137Lvolkensii    CTTTTCGTTAACGGTTTAAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTAGGGTG
139Lholstii      CTTTTCGTTAACGGTTTAAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTAGGGTG
143Lorientale    CTTTTCGTTAACGGTTTTAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
146Lnervosum     CCTTTCGCTAACGGGTTTAAATTCCTTATTTTTCTCAT-TCATTGAATTCTTTTACAAAATTCTTTGGGGTG
148Lhypericifoli CTTTTCGTTAACGGGTTTTAATTCCTTATCTTTCTCAT-TCATTGAATTATTTTACAAAAGTATTTTGGGTG
149Lflavum       CTTTTCGTTAACGGTTTTAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTC
151Lcatharticum  CTTTTCGTTAATGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTGACAAAAGTATTTGGGGTG
156Ltenuifolium  CTTTTCGTTAACGGTTAAAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTAGGGTG
157Ltauricum     CTTTTCGTTAACGGTTTTAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTC
163Lelegans      CTTTTCGTTAACGGTTTTAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTC
164Larboreum     CTTTTCGTTAACGGTTTTAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
165Lrzedowskii   CTTTTCGTTAACGGGTTTAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAATTCTTTGGGGTG
171Rlinoides     CTTTTCGTTATTCGTTACAAATTCCTTATCTCTGTCAT-TCATTGAATTCTTTTACAAA----TTGGGGGTT
183Lpuberulum    CTTTTCGTTAACGGTTTCAAATTCCTTAGCTTTCTCAT-TCATTGAATTCTTTTACAAAATTATTTGGGGTT
184Lvernale      CTTTTCGTTAACGGTTTCAAATTCCTTAGCTTTCTCAT-TCATTGAATTCTTTTACAAAATTATTTGGGGTT
186Llundellii    CTTTTCGTTAACGGTTTCAAATTCCTTAGCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTT
187Lcremnophyllu CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
193Lbrevifolium  CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
194Lprostratum   -----------------CAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGG-G
195Lchamissonis  CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
196Lerigeroides  ----------------------------------------------------------------------
200Lcarneum      CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
201Lpringlei     CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
206Cselaginoides CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
210bLmacraeimacr CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
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223Lkingii       CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGCATTCTTTTACAAAAGTATTTGGGGTG
224Lmonogynum    CTTT-CGTTAACCAGTTTCAATTCCTTATCTTTCTCAT-TCAAAGAATTCTTTTACAACAATCTTTGGAGTG
228Lneomexicanum -TTTTCGTTAACGGTTTCAAATTCCTTATCTTTCT------ATCGCATTCTTTTACAAAAGTATTTGGGGTG
231Lcompactum    CTTTTCGTTAACGGTTTCAAATTCCTTAGCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTT
232Laustrale     CTTTTCGTTAACGGTTTCAAATTCCTTAGCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTT
233Laristatum    CTTTTCGTTAACGGTTTCAAATTCCTTAGCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGGT
234Lrigidumberla CTTTTCGTTAACGGTTTCAAATTCCTTAGCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTT
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241Lrigidumberla CTTTTCGTTAACGGTTTCAAATTCCTTAGCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTT
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246LrigidumKerr  CTTTTCGTTAACGGTTTCAAATTCCTTAGCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTT
253Lelongatum    CTTTTCGTTAACGGTTTCAAATTCCTTAGCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTT
256Lmedium       CTTTTCGTTAACGGTTTCAAATTCCGTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
257Lmedium       ------GTTAACGGTTTCAAATTCCGTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
258Lquadrifolium CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
259Lheterostylum CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
266Lcarteri      CTTTTCGTTAACGGTTTCAAATTCCTTAGCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTT
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268Larenicola   CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
269Lwestii      CTTTTCATTAACGGTTTCAAATTCCGTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
270Lorizabae    CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTTTTTTACAAAAGTATTTGGGGGG
291Lrigidumfilif CTTTTCGTTAACGGTTTCAAATTCCTTAGCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTT
293Lquatemalense CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
294Lcatharticum  CTTTTCGTTAATGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTGACAAAAGTATTTGGGGTG
302Lsubteres     CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
307Lalatum       CTTTTCGTTAACGGTTTCAAATTCCTTAGCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTT
310Llasiocarpum  CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
244Lhudsonioides ------------------------------------------------------------------------
214Lbienne       CTTTTCGTTAACGGTTTCAA-TTCCTTATCTTTCTCAT-TCAAAGAATTCTTTTACAAAATTCTTTGGAGTG
249LinumBrackenr CTTTTCGTTAACGGTTTCAAATTCCTTATTTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
250Lhudsonioides CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTTGGGTG
A1Lrigidumpuberu CTTTTCGTTAACGGTTTCAAATTCCTTAGCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTT
F1Lbahamensecora CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
F2Lcruciata     ------------------------------------------------------------------------
F5Lnelsonii     CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
F6Ltenellum     CTTTTCGTTAACGGTTTCAAATTCCTTATCTTT--CAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
F7Lscabrellum   CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
L17Ltenuifolium CTTTTCGTTAACGGTTAAAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTAGGGTG
L29Lmaritimum   CTTTTCGTTAACGGTTTAAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAATTATTTGGGGTG
L4Lusitatissimum CTTTTCGTTAACCGGTTTCAATTCCTTATCTTTCTCAT-TCAAAGAATTCTTTTACAAAATTCTTTGGAGTG
L41Lviscosum    CTTTTCGTTAACGGATTTAAATTCCTTATCTTTCTCAT-TCATTGAATTATTTTACAAAAGTATT-GGGGTG
L43Lcatharticum CTTTTCGTTAATGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTGACAAAAGTATTTGGGGTG
L57Lflavum      CTTTTCGTTAACGGTTTTAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTC
LPB2Loligophyllu CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
PM1983Sdigynum  CTTTTCGTTAACGGTTTCAAATTCTTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTTTTGGGGGTT
SA1Lafricanum   CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
SA10Lesterhuysen CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
SA11LinumAgulhas CTTTTCGTTAACGATTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTT
SA12Laethiopicum CTTTTCGTTAACGATTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTT
SA13LinumspWindb CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TTATTGAATTCTTTTACAAAAGTATTTGGGGTG
SA14Lvillosum   ------------------------------------------------------------------------
SA17Lthesioides CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
SA19Lcomptonii  CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
SA3Lacuticarpum CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
SA4Lgracile     CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
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SA6Lgracile     CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
SA7Linumdehoop  CTTTTCGTTAACGATTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTT
SA8Ladustum     CTTTTCGTTAACGGTTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTG
SA9Lesterhuysena CTTTTCGTTAACGATTTCAAATTCCTTATCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTT
SD1Lrigidumcompa CTTTTCGTTAACGGTTTCAAATTCCTTAGCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTT
Gyp1YesoHills   CTTTTCGTTAACGGTTTCAAATTCCTTAGCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTT
400Lrigidumrigid CTTTTCGTTAACGGTTTCAAATTCCTTAGCTTTCTCAT-TCATTGAATTCTTTTACAAAAGTATTTGGGGTT
162Ldecumbens   CTTTTCGTTAACGGGTTTAAATTCCTTATCTTTCTTAT-TCAAAGAATTCTTTTACAAAATTCTTTGGGGTG
401Lintercursum ------------------------------------------------------------------------


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                 555555555555555555555555555555555555555555555555555555555555555555555555
                 222222222333333333344444444445555555555666666666677777777778888888888999
Taxon/Node       123456789012345678901234567890123456789012345678901234567890123456789012
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001Lstriatum    AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
005Limbricatum  AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
006Lbahamense   AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
007Lbahamense   AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
009Lschiedeanum AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
010Llewisii     AATCCAAGTTAAGTCTTGGAATAGATATAATAGACATAGAAATGAACATGTCTTTTTTAACAAAACTCCCCT
011Lsuffruticosu CACACAAGTTAAGTCTTCTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
012Lstrictum    CACACAAGTTAAGTCTTCTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
013Lnarbonense  AATACAAGTTGAGTCTTGTAATAGAGATAATACACATAGAAATGAACATCTTTTTTTTAACAAAACTCCCCT
022Hclevelandii AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
025Hdisjunctum  AACACAAGTTAAGTCTGGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
027Lberlandierib ------------------------------------------------------------------------
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032Lhudsonioides ------------------------------------------------------------------------
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034Lrupestre      AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
035Lrigidumrigid  AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCAC
036Lrupestre      AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
037Lmexicanum     AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
038Llongipes      AA----------------------------------------------------------------------
040Lcruciata      AA----------------------------------------------------------------------
041Laristatum     AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
042Lflagellare    AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
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047Hdrymarioides  AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
048Hmicranthum    AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
049Cselaginoides  AACACAAGTTAAGTCTTGTAATAGATATGATACATATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
055Laethiopicum   AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTCGCAAAACTCCCCC
059Lcomptonii     AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTCGCAAAACTCCCCC
061Lesterhuysena  AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTCGCAAAACTCCCCC
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067Lthunbergii    AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTCGCAAAACTCCCCC
072Ltrigynum      AACACAAGTTAAGTCTTGTAATAGATATGATATACATAGAAATGAACAGCTTTTATTTAGCAAAACTCCCCC
075Lstriatum      AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
076Lmarginale     AGTACAAGTTAAGTCTTGGAATAGAGATAATACACATAGAAATGAACATCTTTTTTTTAACAAAACTCCCCT
083Sdigynum       CACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAACCTCCCCC
089Llittorale     AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
091Loligophyllum  AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
123Lkingii        AAGACAAGTTAAGTCTTGTAATAGATATGATACACATTGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
124Lfloridanum    AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
130Lvirginianum   AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
132Lsulcatum      AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
137Lvolkensii     AACACAAGTTAAGTCTTCTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
139Lholstii       AACACAAGTTAAGTCTTCTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
143Lorientale     AACACAAGTTAAGTCTTGTAATAGATATGATATACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
146Lnervosum      AATACAAGTTAAGTCTTGTAATAGATATAATAGACATAGAAATTTACATCTTAGTTTAACAAAACTCCCCT
148Lhypericifoli  AACAGAAGTTAAGTCTTGGAATAGATATAATATACATAGAAATGAATATCGTTTTTTAACAAAACTCCCCC
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151Lcatharticum   CACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATTTTTTATTTAGCAAAACTCCCCC
156Ltenuifolium   CACACAAGTTAAGTCTTCTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
157Ltauricum      AACACAAGTTAAGTCTTGTAATAGATATGATATACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
163Lelegans       AACACAAGTTAAGTCTTGTAATAGATATGATATACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
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171Rlinoides      CACCCAAGTTCAGTCTTGGACTAGATATGATACACATCGAAATGAACATTTTTTATTT--------------
183Lpuberulum     AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
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193Lbrevifolium   AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
194Lprostratum    AACACAAGTTAAGCCTGGAAAAAAATAGAAAACACATAAAAAGAAACATCTTTTATTGAGCAAAACCCCCCC
195Lchamissonis   AA----------------------------------------------------------------------
196Lerigeroides   ------------------------------------------------------------------------
200Lcarneum       AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAATTCCCCC
201Lpringlei      AACACAAGTTAAGTCTTGTAATAGATATAATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
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210bLmacraeimacr  AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
215Lchamissonis   AA----------------------------------------------------------------------
219Lscoparium     AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
220Cselaginoides  AACACAAGTTAAGTCTTGTAATAGATATGATACATATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
221Lburkartii     AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
223Lkingii        AAGACAAGTTAAGTCTTGTAATAGATATGATACACATTGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
224Lmonogynum     AGTACAAGTTAAGTCTTGGAATAGAGATAATACACATAGAAATGAACATCTTTTTTTTAACAAAACTCCCCT
228Lneomexicanum  AAGACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
231Lcompactum     AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCAC
232Laustrale      AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
233Laristatum     AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
234Lrigidumberla  AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCAC
236Lrigidumberla  AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCAC
238Lpratense      AATCCAAGTTAAGTCTTGGAATAGATATAATAGACATAGAAATGAACATGTCTTTTTAACAAAACTCCCCT
241Lrigidumberla  AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCAC
242Lrupestre      AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTA-------------
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246LrigidumKerr  AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCAC
253Lelongatum    AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCAC
256Lmedium       AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
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258Lquadrifolium AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTCGCAAAACTCCCCC
259Lheterostylum AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTCGCAAAACTCCCCC
266Lcarteri      AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCAC
268Larenicola    AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
269Lwestii       AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
270Lorizabae     AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
291Lrigidumfilif AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCAC
293Lquatemalense AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
294Lcatharticum  CACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATTTTTTATTTAGCAAAACTCCCCC
302Lsubteres     AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
307Lalatum       AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
310Llasiocarpum  AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
244Lhudsonioides ------------------------------------------------------------------------
214Lbienne       AATCCAAGTTAAGTCTTGGAATAGAGATAATACACATAGAAATGAACATCTTTTTTTTAACAAAACTCCCCT
249LinumBrackenr AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
250Lhudsonioides AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
A1Lrigidumpuberu AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCAC
F1Lbahamensecora AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
F2Lcruciata      ------------------------------------------------------------------------
F5Lnelsonii      AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
F6Ltenellum      AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
F7Lscabrellum    AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
L17Ltenuifolium  CACACAAGTTAAGTCTTCTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
L29Lmaritimum    AACACAAGTTAAGTCTTGTAATAGATATGATATACATAGAAATGAACAGCTTTTATTTAGCAAAACTCCCCC
L4Lusitatissimum AATCCAAGTTAAGTCTTGGAATAGAGATAATACACATAGAAATGAACATCTTTTTTTTAACAAAACTCCCCT
L41Lviscosum     AACACAAGTTAAGTCTTGGAATAGATATAATATACATAGAAATGAACATCGTTTTTTTAACAAAACTCCCCC
L43Lcatharticum  CACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATTTTTTATTTAGCAAAACTCCCCC
L57Lflavum       AACACAAGTTAAGTCTTGTAATAGATATGATATACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
LPB2Loligophyllu AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
PM1983Sdigynum   CACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAACCTCCCCC
SA1Lafricanum    AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTCGCAAAACTCCCCC
SA10Lesterhuysen AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAATATCTTTTATTTCGCAAAACTCCCCC
SA11LinumAgulhas AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTCGCAAAACTCCCCC
SA12Laethiopicum AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTCGCAAAACTCCCCC
SA13LinumspWindb AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTAGTTCGCAAAACTCCCCC
SA14Lvillosum    ------------------------------------------------------------------------
SA17Lthesioides  AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTCGCAAAACTCCCCC
SA19Lcomptonii   AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTCGCAAAACTCCCCC
SA3Lacuticarpum  AACACAAGTTAAGTCTTGTAATARATATGATACACATAGAAATGAACATCTTTTATTTCGCAAAACTCCCCC
SA4Lgracile      AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTCGCAAAACTCCCCC
SA5Lgracile      AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTCGCAAAACTCCCCC
SA6Lgracile      AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTCGCAAAACTCCCCC
SA7Linumdehoop   AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTCGCAAAACTCCCCC
SA8Ladustum      AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTCGCAAAACTCCCCC
SA9Lesterhuysena AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTCGCAAAACTCCCCC
SD1Lrigidumcompa CACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
Gyp1YesoHills    AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
400Lrigidumrigid AACACAAGTTAAGTCTTGTAATAGATATGATACACATAGAAATGAACATCTTTTATTTAGCAAAACTCCCCC
162Ldecumbens    AATACAAGTTAAGTCTTGTAATAGAGATAATACACATAGAAATGAACATCTTTTTTTTAACAAAACTCCCCT
401Lintercursum  ------------------------------------------------------------------------


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                 555555566666666666666666666666666666666666666666666666666666666666666666
                 999999900000000001111111111222222222233333333334444444444555555555566666
Taxon/Node       345678901234567890123456789012345678901234567890123456789012345678901234
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001Lstriatum     TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
005Limbricatum   TGGAAATTGTAATGATTAACAATCAAAATCATTATTCTGAC-------------------------------
006Lbahamense    TGGAAAGTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
007Lbahamense    TGGAAAGTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
009Lschiedeanum  TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
010Llewisii      TGGAATTTGTAAGGATTAACAATCCAAACCATTAT-------------------------------------
011Lsuffruticosu TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAAACTTACAAAAGGATATAAAACGTTTC
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012Lstrictum      TGGAACTTGTAATGATTAACAATCAAAAGAATTATTCGGACTGAAAACTAAATTTAGGATATAAAACGTTTC
013Lnarbonense    TGGAACTTGTAAGGATTAACAATCCGAATCATTAT-------------------------------------
022Hclevelandii   TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
025Hdisjunctum    RGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
027Lberlandierib  ------------------------------------------------------------------------
028Lberlandierif  TGGAAATTGTAATGATTAACAATCAAAATCATTATT-----------------------------------C
032Lhudsonioides  ------------------------------------------------------------------------
034Lrupestre      TGGAAAGTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
035Lrigidumrigid  TGGAAATTGTAATGATTAACAATCAAAA-----------------------CAAA----------ATTATTC
036Lrupestre      TGGAAAGTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
037Lmexicanum     TGGAAATTGTAATGATTAACAATCCGAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
038Llongipes      -------------------------------------------------------AGGATATAAAACGTTTC
040Lcruciata      -------------------------------------------------------AGGATATAAAACGTTTC
041Laristatum     TGGAAATTGGAATGATTAACAATCAAAATCATTAT-----------------------------------TC
042Lflagellare    TGGAAAGTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
044Reinwardtiain  TGGAAATTGTAATGATTAACAATCCAAATCATTATTCGGACTGAAA-CTTCCAAAAGGATACAAAACGTTTC
047Hdrymarioides  TGGAAATTGTAATGATTAACAATCAAAATAATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
048Hmicranthum    TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
049Cselaginoides  TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
055Laethiopicum   TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
059Lcomptonii     TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
061Lesterhuysena  TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
066Ltenue         CGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTAAAAAAGGATATAAAACGTTTC
062Lheterostylum  TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
067Lthunbergii    TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
072Ltrigynum      CGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTAAAAAAGGATATAAAACGTTTC
075Lstriatum      TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
076Lmarginale     TGGAACTTGTAAGGATTAACAATCCGAACCATTAT-------------------------------------
083Sdigynum       TGGAAATTGTAATGATTAACAATCCAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
089Llittorale     TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
091Loligophyllum  TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
123Lkingii        TGGAAATTTTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
124Lfloridanum    TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
130Lvirginianum   TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
132Lsulcatum      TGGAAATTGTAATGATTAACAATCAAAATCATTATTCT----------------------------------
137Lvolkensii     TGGAACTTGTAATGATTAACAATCAAAATAATCATTCGGACTGAAAACTTCCAAAAGGATATAAAACGTTTC
139Lholstii       TGGAACTTGTAATGATTAACAATCAAAATAATCATTCGGACTGAAAACTTCCAAAAGGATATAAAACGTTTC
143Lorientale     CGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTAAAAAAGGATATAAAATCTTTC
146Lnervosum      TGGAACTTGTTCGGATTAACAATCCGAACCATTAT-------------------------------------
148Lhypericifoli  TGGAAATTGTAATGATTAATAATCCGAAT-------------GAAT-CACATTAT-----------------
149Lflavum        CGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTAAAAAAGGATATAAAATGTTTC
151Lcatharticum   TGGAAATTGTAATGATTAACAATCAAAATAATTATTTGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
156Ltenuifolium   TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAAACTTACAAAAGGATATAAAACGTTTC
157Ltauricum      CGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAACTTAAAAAGAGGATATAAAATGTTTC
163Lelegans       CGGAAATTGTAATAATTAACAATCAAAATCATTATTCGGACTGAAA-CTTAAAAAAGGATATAAAATGTTTC
164Larboreum      CGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTAAAAAAAGATATAAAATGTTTC
165Lrzedowskii    TGGAATTTGTAAGGATTAACAATCCAAACCATTAT-------------------------------------
171Rlinoides      ------------------------------------------------------------------------
183Lpuberulum     TGGAAATTGTAATGATTAACAATCAAAATCATTATTCTGACATT----------------------------
184Lvernale       TGGAAATTGTAATGATTAACAATCAAAATCATTA-----------------------------------TTC
186Llundellii     TGGAAATTGTAATGATTAACAATCAAAATCATTA-----------------------------------TTC
187Lcremnophyllu  TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
193Lbrevifolium   TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
194Lprostratum    GGGAAAGGGAAGGGATAAACAAGCAAAATCATTATTCGGACGGAAA-CTTACAAAAGGATATAAAACGTTTC
195Lchamissonis   -------------------------------------------------------AGGATATAAAACATTTC
196Lerigeroides   ------------------------------------------------------------------------
200Lcarneum       TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAACTTACAAAAAGGATATAAAACGTTTC
201Lpringlei      TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAACTTACAAAAAGGATATAAAACGTTTC
206Cselaginoides  TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAACTTACAAAAAGGATATAAAACGTTTC
210bLmacraeimacr  TGGAAATTTTAATGATTAACAATCAAAATCATTAGTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
215Lchamissonis   -------------------------------------------------------AGGATATAAAACATTTC
219Lscoparium     TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
220Cselaginoides  TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
221Lburkartii     TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAACGGATATAAAACGTTTC
223Lkingii        TGGAAATTTTAAATTTTAATGATTAACATCAAAATCATTATTCGGACTGAAACTTAGGATATAAAACGTTTC
224Lmonogynum     TGGAACTTGTAAGGATTAACAATCCGAATCATTAT-------------------------------------
228Lneomexicanum  TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
231Lcompactum     TGGAAATTGTAATGATTAACAATCAAAA-----------------------CAAA-----------------
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232Laustrale     TGGAAATTGTAATGATTAACAATCAAAATCATTATTCT----------------------------------
233Laristatum    TGGAAATTGGAATGATTAACAATCAAAATCATTATTCT----------------------------------
234Lrigidumberla TGGAAATTGTAATGATTAACAATCAAAA-----------------------CAAA-----------------
236Lrigidumberla TGGAAATTGTAATGATTAACAATCAAAA-----------------------CAAA-----------------
238Lpratense     TGGAATTTGTAAGGATTAACAATCCAAACCATTAT-------------------------------------
241Lrigidumberla TGGAAATTGTAATGATTAACAATCAAAA-----------------------CAAA-----------------
242Lrupestre     ------------------------------------------------------------------------
246LrigidumKerr  TGGAAATTGTAATGATTAACAATCAAAA-----------------------CAAA-----------------
253Lelongatum    TGGAAATTGTAATGATTAACAATCAAAA-----------------------CAAA-----------------
256Lmedium       TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
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259Lheterostylum TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
266Lcarteri      TGGAAATTGTAATGATTAACAATCAAAATCATTATT-----------------------------------C
268Larenicola    TGGAAAGTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
269Lwestii       TGGAAATTGTAATGATTAACAATCAAAA---------------------------AGGATATAAAACGTTTC
270Lorizabae     TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
291Lrigidumfilif TGGAAATTGTAATGATTAACAATCAAAATCATTATT-----------------------------------C
293Lquatemalense TGGAAATTGTAATGATTAACAATCCGAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
294Lcatharticum   TGGAAATTGTAATGATTAACAATCAAAATAATTATTTGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
302Lsubteres     TGGAAATTGTAATGATTAACAATCAAAATCATTATT-----------------------------------C
307Lalatum       TGGAAATTGTAATGATTAACAATCAAAATCATTATT-----------------------------------C
310Llasiocarpum  TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATAWAAAACGTTTC
244Lhudsonioides ------------------------------------------------------------------------
214Lbienne       TGGAACTTGTAAGGATTAACAATCCGAATCATTAT-------------------------------------
249LinumBrackenr TGGAAATTGTAATGATTAACAATCAAAATCATTATTCT----------------------------------
250Lhudsonioides TGGAAATTGTAATGATTAACAATCAAAA--------------------------------------------
A1Lrigidumpuberu TGGAAATTGTAATGATTAACAATCAAAATCATTATT-----------------------------------C
F1Lbahamensecora TGGAAAGTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
F2Lcruciata      ------------------------------------------------------------------------
F5Lnelsonii      TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
F6Ltenellum      TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
F7Lscabrellum    TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
L17Ltenuifolium  TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAACTTACAAAAGGATATAAAACGTTTC
L29Lmaritimum    CGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTAAAAAAGGATAGAAAACGTTTC
L4Lusitatissimum TGGAACTTGTAAGGATTAACAATCCGAATCATTAT-------------------------------------
L41Lviscosum     CGGAAATTGTAATGATTAATAATCCGAAAT------------GAAT-CACCATTA-----------------
L43Lcatharticum  TGGAAATTGTAATGATTAACAATCAAAATAATTATTTGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
L57Lflavum       CGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTAAAAAAGGATATAAAATGTTTC
LPB2Loligophyllu TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
PM1983Sdigynum   TGGAAATTGTAATGATTAACAATCCAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
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SA10Lesterhuysen TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
SA11LinumAgulhas TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
SA12Laethiopicum TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
SA13LinumspWindb TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
SA14Lvillosum    ------------------------------------------------------------------------
SA17Lthesioides  TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
SA19Lcomptonii   TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
SA3Lacuticarpum  TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
SA4Lgracile      TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
SA5Lgracile      TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
SA6Lgracile      TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
SA7Linumdehoop   TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
SA8Ladustum      TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
SA9Lesterhuysena TGGAAATTGTAATGATTAACAATCAAAATCATTATTCGGACTGAAA-CTTACAAAAGGATATAAAACGTTTC
SD1Lrigidumcompa TGGAAATTGTAATGATTAACAATCAAAATAATTATT-----------------------------------C
Gyp1YesoHills    TGGAAATTGTAATGATTAACAATCAAAATCATTATT-----------------------------------C
400Lrigidumrigid TGGAAATTGTAATGATTAACAATCAAAATCATTATT-----------------------------------C
162Ldecumbens    TGGAACTTGTAAGGATTAACAATACGAATCATTAT-------------------------------------
401Lintercursum  ------------------------------------------------------------------------
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                 666666666666666666666666666666666667777777777777777777777777777777777777
                 666667777777777888888888899999999990000000000111111111122222222223333333
Taxon/Node       567890123456789012345678901234567890123456789012345678901234567890123456
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005Limbricatum   ----ATTGG-AAAAAACTTTGAAATGTTTCGACCCTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
006Lbahamense    TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
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009Lschiedeanum  TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
010Llewisii      ----------------CTTGAAAAAGTTTCGATCTTTTTT-T--------------------AGA-CCAATC
011Lsuffruticosu TGACATTGT-AAAAAACTTTTAAATATTTCGACCTTTTGT-TTAATTGAC----------ATAGACCCAATC
012Lstrictum     TGACATTGT-AAAAAACTTTTAAATGTTTCGACCTTTTGT-TTAATTGAC----------ATAGACCCAATC
013Lnarbonense   ----------------CTTGACAAAGTTTCGATCAATTTT--TAATTGAC----------ATAGACCCAATC
022Hclevelandii  TGACATTGG-AAAAAACTTTGAAATGTTTCAACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
025Hdisjunctum   TGACATTGG-AAAAAACTTTGAAATGTTTCAACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
027Lberlandierib ------------------------------------------------------------------------
028Lberlandierif TGACATTGG-AAAAAACTTTTACATGTTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
032Lhudsonioides ------------------------------------------------------------------------
034Lrupestre     TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
035Lrigidumrigid TGACATTGG-AAAAAACTTTTACATGTTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
036Lrupestre     TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCA-TC
037Lmexicanum    TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
038Llongipes     TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
040Lcruciata     TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
041Laristatum    TGACATTGG-AAAAAACTTTTACATGTTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
042Lflagellare   TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
044Reinwardtiain TGACATTGG-AAAAAACTGCAAAATGTTT-CACCTTTTTT--TAATTGAC----------ATAGACCCAATC
047Hdrymarioides TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACGTAGACCCAATC
048Hmicranthum   TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
049Cselaginoides TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
055Laethiopicum  TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
059Lcomptonii    TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
061Lesterhuysena TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
066Ltenue        TAACATTGG-AAAAAACTTTGAAATGTTTTGACCTTTTTT-TTAATTGAG----------GTAGACCCAATC
062Lheterostylum TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACGTAGACCCAATC
067Lthunbergii   TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-T-----------AATTGACATAGACCCAATC
072Ltrigynum     TAACATTGG-AAAAAACTTTGAAATGTTT-GACCTTTTTT-TTAATTGAC----------ATAGACCCAATC
075Lstriatum     TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
076Lmarginale    ----------------CTTGACAAAGTTTCGATCAATTTT--TAATTGAC----------ATAGCCCCAATC
083Sdigynum      TGACATTGG-AAAAAACTTTGAAATGTTTCGACCCTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
089Llittorale    TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
091Loligophyllum TGACATTGG-ACAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
123Lkingii       GGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTAAATTGACATAGACCCAATC
124Lfloridanum   TGACCTTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
130Lvirginianum  TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
132Lsulcatum     -GACATTGG-AAAAAACTTTGAAATGCTTCGACCTTTTTT--TAATTGACTTTAATTGACATAGACCCAATC
137Lvolkensii    TGACATTGT-AAAAAACTTTTAAATCGTTCGACCTTTTGT-TTAATTGAC----------ATAGACCCAATC
139Lholstii      TGACATTGT-AAAAAACTTTTAAATGTTTCGACCTTTTGT-TTAATTGAC----------ATAGACCCAATC
143Lorientale    TAACATTGG-AAAAAACTTTTAAATGCTTCGACCTTTTTT-TTAATTGAC----------ATAGACCCAATC
146Lnervosum     ----------------CTTGAAAAAGTTTCGATCTTTTTG--TAATTGAC----------ATAGACCCAATC
148Lhypericifoli ----------------CTTGAAAAAGTTTCGACCCCTTTT--TAATTG--TTTAATTGACATAGACCCAATC
149Lflavum       TAACATTGG-AAAAAACTTTTAAATGCTTCGACCTTTTTT-TTAATTGAC----------ATAGACCCAATC
151Lcatharticum  TGACATTGG-AAAAAACTTTTAAATGCTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
156Ltenuifolium  TGACATTGT-AAAAAACTTTTAAATGTTTCGACCTTTTGT-TTAATTGAC----------ATAGACCCAATC
157Ltauricum     TAACATTGG-AAAAAACTTTTAAATGCTTCGACCTTTTTT-TTAATTGAC----------ATAGACCCAATC
163Lelegans      TAACATTGG-AAAAAACTTTTAAATGCTTCGACCTTTTTT-TTAATTGAC----------ATAGACCCAATC
164Larboreum     TAACATTGG-AAAAAACTTTTAAATGCTTCGACCTTTTTT-TTAATTGAC----------ATAGACCCAATC
165Lrzedowskii   ----------------CTTGAAAAAGTTTCGATCTTTTTT-T--------------------AGA-CCAATC
171Rlinoides     ----------------------------TCGACCTTTTTT---TATTGAC----------ATAGACCCAATC
183Lpuberulum    -------GG-AAAAAACTTTTACATGTTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
184Lvernale      TGACATTGG-AAAAAACTTTTACATGTTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
186Llundellii    TGACATTGG-AAAAAACTTTTACATGTTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
187Lcremnophyllu TGACATTGG-ACAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
193Lbrevifolium  TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGAC----------ATAGACCCAATC
194Lprostratum   TGACATTGG-ACAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
195Lchamissonis  TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
196Lerigeroides  ------------------------------------------------------------------------
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200Lcarneum      TGACATTGG-AAAAAATTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
201Lpringlei     TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
206Cselaginoides TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
210bLmacraeimacr TGACATTGG-ACAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
215Lchamissonis  TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
219Lscoparium    TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGAC----------ATAGACCCAATC
220Cselaginoides TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACA-----------
221Lburkartii    TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
223Lkingii       GGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
224Lmonogynum    ----------------CTTGACAAAGTTTCGATCAATTTT--TAATTGAC----------ATAGCCCCAATC
228Lneomexicanum GGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
231Lcompactum    -GACATTGG-AAAAAACTTTTACATGTTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
232Laustrale     -GACATTGG-AAAAAACTTTTACATGTTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
233Laristatum    -GACATTGG-AAAAAACTTTTACATGTTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
234Lrigidumberla -GACATTGG-AAAAAACTTTTACATGTTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
236Lrigidumberla -GACATTGG-AAAAAACTTTTACATGTTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
238Lpratense     ----------------CTTGAAAAAGTTTCGATCTTTTTT---------------------TAGA-CCAATC
241Lrigidumberla -GACATTGG-AAAAAACTTTTACATGTTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
242Lrupestre     ------------------------------------------------------------------------
246LrigidumKerr  -GACATTGG-AAAAAACTTTTACATGTTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
253Lelongatum    -GACATTGG-AAAAAACTTTTACATGTTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
256Lmedium       TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
257Lmedium       TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
258Lquadrifolium TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
259Lheterostylum TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
266Lcarteri      TGACATTGG-AAAAAACTTTTACATGTTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
268Larenicola    TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
269Lwestii       TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
270Lorizabae     TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAG--------
291Lrigidumfilif TGACATTGG-AAAAAACTTTTACATGTTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
293Lquatemalense TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
294Lcatharticum  TGACATTGG-AAAAAACTTTTAAATGCTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
302Lsubteres     TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT--TAATTGACTTTAATTGACATAGACCCAATC
307Lalatum       TGACATTGG-AAAAAACTTTTACATGTTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
310Llasiocarpum  TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
244Lhudsonioides ------------------------------------------------------------------------
214Lbienne       ----------------CTTGACAAAGTTTCGATCAATTTT--TAATTGAC----------ATAGCCCCAATC
249LinumBrackenr -GACATTGG-AAAAAACTTTGAAATGTTTCGACCCTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
250Lhudsonioides -GACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT--TAATTGACTTTAATTGACATAGACCCAATC
A1Lrigidumpuberu TGACATTGG-AAAAAACTTTTACATGTTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
F1Lbahamensecora TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
F2Lcruciata      ------------------------------------------------------------------------
F5Lnelsonii      TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAAT-
F6Ltenellum      TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
F7Lscabrellum    TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
L17Ltenuifolium  TGACATTGT-AAAAAACTTTTAAATGTTTCGACCTTTTGT-TTAATTGAC----------ATAGACCCAATC
L29Lmaritimum    TAACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGAC----------ATAGACCCAATC
L4Lusitatissimum ----------------CTTGACAAAGTTTCGATCAATTTT--TAATTGAC----------ATAGCCCCAATC
L41Lviscosum     ----------------CTTGAAAAAGTTTCGACCCCTTTT--TAATTG--TTTAATTGACATAGATCCAATC
L43Lcatharticum  TGACATTGG-AAAAAACTTTTAAATGCTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
L57Lflavum       TAACATTGG-AAAAAACTTTTAAATGCTTCGACCTTTTTT-TTAATTGAC----------ATAGACCCAATC
LPB2Loligophyllu TGACATTGG-ACAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
PM1983Sdigynum   TGACATTGG-AAAAAACTTTGAAATGTTTCGACCCTTTTTTTTAATTGACTTTAATTGACATAGACCCAATC
SA1Lafricanum    TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
SA10Lesterhuysen TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
SA11LinumAgulhas TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
SA12Laethiopicum TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
SA13LinumspWindb TGACATTGG-AAAAAACTTTGAAATGTTTAGACCTTTTTT--TAATTGACTTTAATTGACATAGACCCAATC
SA14Lvillosum    ------------------------------------------------------------------------
SA17Lthesioides  TGACTTTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
SA19Lcomptonii   TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
SA3Lacuticarpum  TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
SA4Lgracile      TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
SA5Lgracile      TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
SA6Lgracile      TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
SA7Linumdehoop   TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
SA8Ladustum      TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
SA9Lesterhuysena TGACATTGG-AAAAAACTTTGAAATGTTTCGACCTTTTTT-TTAATTGACTTTAATTGACATAGACCCAATC
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SD1Lrigidumcompa TGACATTGG-AAAAAACTTTTACATGTTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
Gyp1YesoHills    TGACATTGG-AAAAAACTTTTACATGTTTTGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
400Lrigidumrigid TGACATTGG-AAAAAACTTTTACATGTTTCGACCTTTTTT--TAATTGAC----------ATAGACCCAATC
162Ldecumbens     ----------------CTTGACAAAGTTTCGATCAATTTT--TAATTGAC----------ATAGACCCAATC
401Lintercursum  ------------------------------------------------------------------------
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                 222222222222
                 777777777777
                 333444444444
Taxon/Node       789012345678
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001Lstriatum     CATTTAGTAAAG
005Limbricatum   CATTTAGTAAAG
006Lbahamense    CA----------
007Lbahamense    CATTTAGTAAAG
009Lschiedeanum  CATTTAGTAAAG
010Llewisii      CGTTTACTAAAG
011Lsuffruticosu CATTTAGTAAAG
012Lstrictum     CATTTAGTAAAG
013Lnarbonense   CATTTAGTAAAG
022Hclevelandii  CATTTAGTAAAG
025Hdisjunctum   CATTTAGTAAAG
027Lberlandierib ------------
028Lberlandierif CATTTAGTAAAG
032Lhudsonioides ------------
034Lrupestre     CATCTAGTAAAG
035Lrigidumrigid CATTTAGTAAAG
036Lrupestre     CATYTAGTAAAG
037Lmexicanum    CATTTAGTAAAG
038Llongipes     CATTTAGTAAAG
040Lcruciata     CATTTAGTAAAG
041Laristatum    CATTTAGTAAAG
042Lflagellare   CATTTAGTAAAG
044Reinwardtiain CATTTAGTAAAG
047Hdrymarioides CATTTAGTAAAG
048Hmicranthum   CATTTAGTAAAG
049Cselaginoides CATTTAGTAAAG
055Laethiopicum  CATTTAGTAAAG
059Lcomptonii    CATTTAGTAAAG
061Lesterhuysena CATTTAGTAAAG
066Ltenue        CATTTAGTAAAG
062Lheterostylum C-TTTAGTAAAG
067Lthunbergii   CATTTAGTAAAG
072Ltrigynum     CATTTAGTAAAG
075Lstriatum     CATTTAGTAAAG
076Lmarginale    CATTTAGTAAAG
083Sdigynum      CATTTAGTAAAG
089Llittorale    CATTTAGTAAAG
091Loligophyllum CATTTAGTAAAG
123Lkingii       CATTTAGTAAAG
124Lfloridanum   CATTTAGTAAAG
130Lvirginianum  CATTTAGTAAAG
132Lsulcatum     CATTTAGTAAAG
137Lvolkensii    CATTTAGTAAAG
139Lholstii      CATTTAGTAAAG
143Lorientale    CATTTAGTAAAG
146Lnervosum     CGTTTCGTAAAG
148Lhypericifoli CGTTTAGTAAAG
149Lflavum       CATTTAGTAAAG
151Lcatharticum  CATTTAGTAAAG
156Ltenuifolium  CATTTAGTAAAG
157Ltauricum     CATTTAGTAAAG
163Lelegans      CATTTAGTAAAG
164Larboreum     CATTTAGTAAAG
165Lrzedowskii   CGTTTACTAAAG
171Rlinoides     CATTTAGTAAAG
183Lpuberulum    CATTTAGTAAAG
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184Lvernale	CATTTAGTAAAG
186Llundellii	CATTTAGTAAAG
187Lcremnophyllu	CATTTAGTAAAG
193Lbrevifolium	CATTTAGTAAAG
194Lprostratum	C-TTTAGTAAA-
195Lchamissonis	CATTTAGTAAAG
196Lerigeroides	------------
200Lcarneum	CATTTA------
201Lpringlei	CATTTAGTAAAG
206Cselaginoides	CATTTAGTAAAG
210bLmacraeimacr	CATTTAGTAAAG
215Lchamissonis	CATTTAGTAAAG
219Lscoparium	CATTTAGTAAAG
220Cselaginoides	------------
221Lburkartii	CATTTAGTAAAG
223Lkingii	CATTTAGTAAAG
224Lmonogynum	CATTTAGTAAAG
228Lneomexicanum	CATTTAG-----
231Lcompactum	CATTTAGTAAAG
232Laustrale	CATTTAGTAAAG
233Laristatum	CATTTAGTAAAG
234Lrigidumberla	CATTTAGTAAAG
236Lrigidumberla	CATTTAGTAAAG
238Lpratense	CGTTTACTAAAG
241Lrigidumberla	CATTTAGTAAAG
242Lrupestre	------------
246LrigidumKerr	CATTTAGTAAAG
253Lelongatum	CATTTAGTAAAG
256Lmedium	CATTTAGTAAAG
257Lmedium	CATTTAGTAAAG
258Lquadrifolium	CATTTAGTAAAG
259Lheterostylum	CATTTAGTAAAG
266Lcarteri	CATTTAGTAAAG
268Larenicola	C-----------
269Lwestii	CATTTAGTAAAG
270Lorizabae	------------
291Lrigidumfilif	CATTTAGTAAAG
293Lquatemalense	CATTTAGTAAAG
294Lcatharticum	CATTTAGTAAAG
302Lsubteres	CATTTAGTAAAG
307Lalatum	CATTTAGTAAAG
310Llasiocarpum	CATTTAGTAAAG
244Lhudsonioides	------------
214Lbienne	CATTTAGTAAAG
249LinumBrackenr	CATTTAGTAAAG
250Lhudsonioides	CATTTAGTAAAG
A1Lrigidumpuberu	CATTTAGTAAAG
F1Lbahamensecora	CATTTAGTA---
F2Lcruciata	------------
F5Lnelsonii	------------
F6Ltenellum	CATTTAGTAAAG
F7Lscabrellum	CATTTAGTAAAG
L17Ltenuifolium	CATTTAGTAAAG
L29Lmaritimum	CATTTAGTAAAG
L4Lusitatissimum	CATTTAGTAAAG
L41Lviscosum	CGTTTAGTAAAG
L43Lcatharticum	CATTTAGTAAAG
L57Lflavum	CATTTAGTAAAG
LPB2Loligophyllu	CATTTAGTAAA-
PM1983Sdigynum	CATTTAGTAAAG
SA1Lafricanum	CATTTAGTAAAG
SA10Lesterhuysen	CATTTAGTAAAG
SA11LinumAgulhas	CATTTAGTAAAG
SA12Laethiopicum	CATTTAGTAAAG
SA13LinumspWindb	CATTTAGTAAAG
SA14Lvillosum	------------
SA17Lthesioides	CATTTAGTAAAG
SA19Lcomptonii	CAT---------

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SA3Lacuticarpum  CATTTAGTAAAG
SA4Lgracile      CATTTAGTAAAG
SA5Lgracile      CATTTAGTAAAG
SA6Lgracile      CATTTAGTAAAG
SA7Linumdehoop   CATTTAGTAAAG
SA8Ladustum      CATTTAGTAAAG
SA9Lesterhuysena CATTTAGTAAAG
SD1Lrigidumcompa CATTTAGTAAAG
Gyp1YesoHills    CATTTAGTAAAG
400Lrigidumrigid CATTTAGTAAAG
162Ldecumbens    CATTTAGTAAAG
401Lintercursum  ------------
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Appendix D: Selected ITS Matrix, Chapter 3

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                          111111111122222222223333333333444444444455555555556666666666777
Taxon/Node       123456789012345678901234567890123456789012345678901234567890123456789012
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001Lmedium       --------------TAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
005Limbricatum   -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
006Lbahamense    ------------------AAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
007Lbahamense    ------------------------------------------------------TCGAAACCTGC-AAAGCA
009Lschiedeanum  ---------AGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
011Lsuffruticosu --------------TAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-ACAGCA
012Lstrictumssps -------------------------------------------------CATTGTCGAAACCTGC-ACAGCA
022Hclevelandii  ----------------------------------------------------------AACCTGC-AAAGCA
025Hdisjunctum   ---------------AACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
027Lberlandierib -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
028Lberlandierif ---------------AACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
032Lhudsonioides -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-ACAGCA
034Lrupestre     -------------------------------------------------CATTGTCGAAACCTGC-AAAGCA
035Lrigidum      ----------------ACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
036Lrupestre     -------------------------------------------------CATTGTCGAAACCTGC-AAAGCA
037Lmexicanum    -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGCAAAAGCA
038Llongipes     ------------------AAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
040Lcruciata     --------------TAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
041Laristatum    -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
042Lflagellare   -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
047Hdrymarioides -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
048Hmicranthum   ------------CGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
055Laethiopicum  GGAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
059Lcomptonii    --------------TAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
061Lesterhuysena -------------------------------------------------CATTGTCGAAACCTGC-AAAGCA
062Lheterostylum -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
066Ltenue        ---------------AACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
067Lthunbergii   -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
072Ltrigynum     --------------TAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
075Lstriatum     -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
083Sdigynum      ------------------AAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGCAAAAGCA
089Llittorale    -------------GTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
091Loligophyllum -------------------------------------------------CATTGTCGAAACCTGC-AAAGCA
123Lkingii       -------------------------------------------------CATTGTCGAAACCTGC-AAAGCA
124Lfloridanum   --------------------------CGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
130Lvirginianum  -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
132Lsulcatum     -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
137Lvolkensii    -------------GTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-ATAGCA
139Lholstii      ---------------AACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-ATAGCA
143Lorientale    -----------TCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
149Lflavum       ---------------AACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
151Lcatharticum  -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAGGCA
156Ltenuifolium  ---------------AACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-ACAGCA
157Ltauricum     ------------------AAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
163Lelegans      -----------------CAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
164Larboreum     ---------------AACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
171Rlinoides     ---------AGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-ATAGCA
183Lpuberulum    -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
184Lvernale      -----------------CAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AGAGCA
186Llundellii    ---------------------------------GAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
187Lcremnophyllu -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
193Lbrevifolium  ------------------------------GGTGAACTGGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
194Lprostratum   -------------------------------------------------CATTGTCGAAACCTGC-AAAGCA
195Lchamissonis  ------------------------------------------------------------------------
196Lerigeroides  ---AGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
200Lcarneum      ------------------------------------------------------------------------
201Lpringlei     ---------------AACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
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049Cselaginoides -------------------------------------------------CATTGTCGAAACCTGC-AAAGCA
206Cselaginoides -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
210Lmacraei      -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
210Lmacraei      -----------------CAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
215Lchamissonis  ------------CGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
219Lscoparium    ---------------AACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
220Cselaginoides -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
221Lburkartii    -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
223Lkingii       ----------------------------------------------------------AACCTGC-AAAGCA
228Lneomexicanum --------------TAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
231Lcompactum    -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
232Laustrale     -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
233Laristatum    -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCAAAACCTGC-AAAGCA
234Lberlandieri  -----------------CAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
236Lrigidum      -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
241Lberlandieri  -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
242Lrupestre     --------------TAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
244Lhudsonioides -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-ACAGCA
246LrigidumKerr  -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
249Limbricatum   -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
250Lhudsonioides -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-ACAGCA
251Lrigidum      ----------------------------------------------------TGTCGAAACCTGC-AAAGCA
253Lelongatum    -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
256Lmedium       -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
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258Lquadrifolium ----GGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
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269Lwestii       -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
270Lorizabae     -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGCAAAAGCA
291Lrigidumfilif -----------------------------------------------------GTCGAAACCTGC-AAAGCA
293Lguatemalense -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGCAAAAGCA
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310Llasiocarpum  ------------------------------------------------------------------------
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F1Lbahamensecora ----GGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
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F5Lnelsonii     -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
F6Ltenellum     -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
F7Lscabrellum   ----------------------------------------------GATCATTGTCGAAACCTGC-AAAGCA
F8Ltenellum     -------------GTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
L17Ltenuifolium  -------------------------------------------------CATTGTCGAAACCTGC-ACAGCA
L29Lmaritimum    -------------------------------------------------CATTGTCGAAACCTGC-ATAGCA
L43 Lcatharticum -------------------------------------------------CATTGTCGAAACCTGC-AAGGCA
L57Lflavum       -------------------------------------------------CATTGTCGAAACCTGC-AAAGCA
LinumSpYeso      -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
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SA14Lvillosum    -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
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SA4Lgracile      --------------------------------------TGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
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SA8adustum       -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
SA8Ladustum      -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
SA9Lesterhuysena -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
SDLinum          -GAAGGAGAAGTCGTAACAAGGTTTCCGTAGGTGAACCTGCGGAAGGATCATTGTCGAAACCTGC-AAAGCA
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Taxon/Node      345678901234567890123456789012345678901234567890123456789012345678901234
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005Limbricatum  GAATGACC-AGCGAACTCGTTGTTA---AATGTCG-ACGCGGTCGGAGCGAGTTGTGGCCTTC-GGTCCTCC
006Lbahamense   GAATGACC-AGCGAACTTGTTGTTA---AATGTCG-ACGGGGTCGGAGCGAGCTGTGGCCTCT-GGCCCTCC
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143Lorientale   GAATGACC-AGCGAACTCGTTGTTAAT-ATCCTCG-ACGGGGTCGGACACAGATGCGGCCCCT-GGTCCTTT
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L43 Lcatharticum GAACGACC-AGCGAACTCGTTGTTA---AACTTTG-GCGGGGTCGGAGCTAGATGCGGCCCTC-GGCCCTCT
L57Lflavum        GAATGACC-AGCGAACTCGTTGTTA---ATCCTCG-ACGGGGTCGGACACAGATGCGGCCCCT-GGTCCTTT
LinumSpYeso       GAATGACC-AGCGAACTCGTTGTTA---AATCTCG-ACGGGGTCGGACCGAGCGGTGGCCTTT-GGGCCTCC
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SA9Lesterhuysena GAATGACCTAGCGAACTCGTAGTTA---AATGTCG-ATGGGGTCGGAGCGAGCTGCGGCCTTT-GGCCCTCC
SDLinum           GAATGACC-AGCGAACTCGTTGTTA---AACTTCG-ACGGGGTCGGACCGAGCGGTGGCCTTC-GGGCCTCC


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Taxon/Node        567890123456789012345678901234567890123456789012345678901234567890123456
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001Lmedium        ACGTTATGGCCTCGTCGGGC-GGAG---GCTTGGCCCTCGTGGTCTTTTGCC-TACCCGCACAAACT-AACA
005Limbricatum    TCGTGATGGCCACGTCGTGC-GGTG---GCTCGGCCCTTGTGGCC--GTTCA-TTCCCGCACAAACT-AACA
006Lbahamense     TCGAGATGGCCACGTCGGGC-GGGG---GCTCGGCCCTTGTGGTC--GTTCC-TTCCCGCACAAACT-AACA
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009Lschiedeanum  ATGCAATGGCCTTATCAGTG-GGGG---GATCGGCCCTAGTGGTT--GTTCC-TTCCCGCACAAACT-AACA
011Lsuffruticosu ATGCGATGGCCTCGTCGGGT---GG-GGGCTCGGCCCTCGTGGTC--GTGCC--TTCCGCACAAACCAAACA
012Lstrictumssps ACGCGAAGGCCTCGTTGGGT--GGT-GGGCTCGGCCCTTGTGGCC--TTGCC-TTCCCACACAAACT-AACA
022Hclevelandii  GCGCAATGGCCTCGTCGAGCGGGGG---GCTTGGCCCTTGTGGTC--GTGCC-TTTCTGCACAAACT-AACA
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037Lmexicanum    ACGCGATGGCCTCGTCGAGC-GGGG---GCTTGGCCCTTGTGGTC--GTGCC-TTCCTGCACAAACC-AACA
038Llongipes     ACGTGATGACCTCGTCGAGC-GGGG---GCTCAGCC-TTGTGGTT--GTGCC-TTCCCGCACAAACT-AACA
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042Lflagellare   TCGCGATGGCCACGTCGGGC-GGGG---GCTCGGCCCTTGTGGTC--GTTCC-TTCCCGCACAAACT-AACA
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075Lstriatum     ACGTTATGGCCTCGTCGGGC-GGAG---GCTTGGCCCTCGTGGCC--TTGCC-TACCCGCACAAACT-AACA
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089Llittorale    ACGCGATGGCCTTGTCGGGC-GGGG---GCTCAGCCGTCGTGGTT--GTTCC-CTCCCGCACAAACT-AACA
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156Ltenuifolium  ATGCGATGGCCTCGTCGGGT-GGGG---GCTCGGCCCTCGTGGTC--GTGTC--TTCCGCACAAACTAAACA
157Ltauricum     GTGTGATGGCCTCGTCTTGC-GGGATTTGCTCGGTCCTAGTGGCC--TTGCC-TTCCCGCACAAACT-AACA
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228Lneomexicanum CCGTGATGGCCTCGCCGGGC-GGGG---GCTTGACCCTCGTGGTC--TTGCT-TTCCCGCACAAACA-AACA
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234Lberlandieri  TCGCGATGGCCACGTCGTGC-GGGG---GCTCGGCCCTTGTGGTC--GTTCC-TTCCCGCACAAACT-AACA
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258Lquadrifolium ACGCGATGGCCTCGTCGGGC-GGGG---GCTTGACTCTCGTGGTC--GTGCC-TTCCCGCACAAACT-AACA
266Lcarteri       TCGTGATGGCCACGTCGTGC-GGGG---GCTTGGCCCTTGTGGTC--GTTCC-TTCCCGCACAAACT-AACA
268Larenicola     TCGCGATGGCCACGTCGGGC-GGGG---GCTCGGCCCTTGTGGTC--GTTCC-TTCCCGCACAAACT-AACA
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L17Ltenuifolium   ATGCGAAGGCCTCGTCGGGT-GGGG---GCTCGGCCCTCGTGGTC--GTGCC--TTCCGCACAAACTAAACA
L29Lmaritimum     TAGCGATGGCCCTGTCCGATGGGAT---GTTCGGTCCTAGTGGCY--GTTCC-TACCCTCACAAACT-AACA
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L57Lflavum        GTGTGATGGCCTCGTCTTGC-GGGATTTGCTCGGTCCTAGTGGCC--TTGCC-TTCCCGCACAAACT-AACA
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SDLinum           TCGCGATGGCCACGTCGTGC-GGGG---GCTCGGCCCTTGTGGTC--GTTCC-TTCCCGCACAAACT-AACA


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Taxon/Node        789012345678901234567890123456789012345678901234567890123456789012345678
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223Lkingii       AA-CCCCGGCGCGGT-ATGCGTCAAGGAATACTTCGAGCGA-CGCCGTGTCCTTGTGCCCGGTC-ACGGAGC
228Lneomexicanum AA-CCCCGGCGCGGC-ATGCGTCAAGGAATACTTTGAGCGA-CGTCGTGTCCTTGTGCCCGGTT-AAGGAGC
231Lcompactum    AA-CCCCGGCGCGGC-ATGCGTCAAGGAATACTTTGAGCGAACGCCGTG--CTCGTGCCCGGTC-ACGGTGC
232Laustrale     AA-CCCCGGCGCGGC-ATGCGTCAAGGAATACTTTGAGCGAACGTCGCG--CTCGTGCCCGGTC-ACGGTGC
233Laristatum    AA-CCCCGGCGCGGC-ATGCGTCAAGGAATACTTTGAGCGAACGCCGTG--CTCGTGCCCGGTC-ACGGTGC
234Lberlandieri  AA-CCCCGGCGCGGC-ATGCGTCAAGGAATACTTTGAGCGAACGCCGTG--CTCGTGCCCGGTC-ACGGTGC
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242Lrupestre     AA-CCCCGGCGCGGC-ATGCGTCAAGGAATACTTTGAGCGAACGCCGTGTCCTCGTGCYCGGTC-ACGGTGC
244Lhudsonioides AA-CCCCGGCGCGGC-ATGCGTCAAGGAATACTTTGAGCGAGCGTCGCG--CTCGTGCCCGGTC-ACGGAGC
246LrigidumKerr  AA-CCCCGGCGCGGC-ATGCGTCAAGGAATACTTTGAGCGAACGCCGTG--CTCGTGCCCGGTC-ACGGCGC
249Limbricatum   AA-CCCCGGCGCGGC-ATGCGTCAAGGAATACTTTGAGCGAACGTCGTG--CTCGTGCCCGGTC-ACGGTGC
250Lhudsonioides AA-CCCCGGCGCGGC-ATGCGTCAAGGAATACTTTGAGCGAGCGTCGCG--CTCGTGCCCGGTC-ACGGAGC
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253Lelongatum    AA-CCCCGGCGCGGC-ATGCGTCAAGGAATACTTTGAGCGAGCGCCGTG--CTCGTGCCCGGTC-ACGGTGC
256Lmedium       AA-CCCCGGCGCGGT-ATGCGTCAAGGAATACTTTGAGCGA-CGTCGTGTCCTGGTGCC-GGTC-ACGGTGC
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258Lquadrifolium AA-CCCCGGCGCGGC-ATGCGTCAAGGAATACTTAGGGCGA-CGCCGTGTCCTTGTGCCCGGTC-ACGGTGC
266Lcarteri      AA-CCCCGGCGCGGC-ATGCGTCAAGGAATACTTTGAGCGAACGCCGTG--CTCGTGCCCGGTC-ACGGCGC
268Larenicola    AA-CCCCGGCGCGGC-ATGCGTCAAGGAATACTTTGAGCGAACGCCGTGTCCTCGTGCCCGGTC-ACGGTGC
269Lwestii       AA-CCCCGGCGCGGT-ATGCGTCAAGGAATACTTTGATCGA-CGTTGTGTCCTGGTGCC-GGTC-ACGGTGC
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L57Lflavum       AT-CCCCGACGCGGC-ATGCGTCAAGGAATACTTCGAGCGAACGTCGCG-CCTTGTGCCCGGTC-ACGGTGC
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012Lstrictumssps ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
022Hclevelandii  ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
025Hdisjunctum   ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
027Lberlandierib ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
028Lberlandierif ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
032Lhudsonioides ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
034Lrupestre     ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
035Lrigidum      ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
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037Lmexicanum    ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
038Llongipes     ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
040Lcruciata     ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
041Laristatum    ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATCGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
042Lflagellare   ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
047Hdrymarioides ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
048Hmicranthum   ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
055Laethiopicum  ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
059Lcomptonii    ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
061Lesterhuysena ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
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067Lthunbergii   ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
072Ltrigynum     ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTTTTTGAACGC
075Lstriatum     ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
083Sdigynum      ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
089Llittorale    ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
091Loligophyllum ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
123Lkingii       ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
124Lfloridanum   ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
130Lvirginianum  ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
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139Lholstii      ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTTTTTGAACGC
143Lorientale    ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
149Lflavum       ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
151Lcatharticum  ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
156Ltenuifolium  ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
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200Lcarneum      ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
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231Lcompactum    ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
232Laustrale     ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
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234Lberlandieri  ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
236Lrigidum      ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
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244Lhudsonioides ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
246LrigidumKerr  ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
249Limbricatum   ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
250Lhudsonioides ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
251Lrigidum      ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
253Lelongatum    ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
256Lmedium       ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
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258Lquadrifolium ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
266Lcarteri      ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
268Larenicola    ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
269Lwestii       ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
270Lorizabae     ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
291Lrigidumfilif ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
293Lguatemalense ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
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310Llasiocarpum  ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
401Lintercursum  ATGAAGAACGTAGCAAAATGCGATACTTGGTGTGAATTGCAGAATC--------------------------
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F1Lbahamensecora ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
F2Lcruciata      ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
F5Lnelsonii      ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGCCTTTGAACGC
F6Ltenellum      ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
F7Lscabrellum    ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
F8Ltenellum      ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
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L57Lflavum       ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
LinumSpYeso      ATGGAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
PM1983Sdigynum   ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
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SA11LinumAgulhas ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
SA12Laethiopicum ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
SA13LinumspWindb ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
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SA17Lthesiodes   ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
SA19Lcompton     ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAGTCCCGTGAACCATCGAGTCTTTGAACGC
SA1Lafricanum    ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAGCGC
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SA9Lesterhuysena ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC
SDLinum          ATGAAGAACGTAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAACGC


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                 333333344444444445555555555666666666677777777778888888888999999999900000
Taxon/Node       345678901234567890123456789012345678901234567890123456789012345678901234
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001Lmedium       AAGTTGCGCCCGAAGCCATCCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCTCG-TCCCCA
005Limbricatum   AAGTTGCGCCCGAAGCCATCCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TCCCCA
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075Lstriatum     AAGTTGCGCCCGAAGCCATCCGGTTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCTCA-TCCCCA
083Sdigynum      AAGTTGCGCCCGAAGCCACCCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TCCCCA
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089Llittorale     AAGTTGCGCCCGAAGCCATCCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TCCCCA
091Loligophyllum  AAGTTGCGCCYGAAGCCATCCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TCCCCA
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139Lholstii       AAGTTGCGCCCAAAGCCATTCGGCCGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-ACCCCA
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156Ltenuifolium   AAGTTGCGCCCGAAGCCATTCGGTTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-CCCCCA
157Ltauricum      AAGTTGCGCCCGAAGCCATTCGGTTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TCCCCA
163Lelegans       AAGTTGCGCCCGAAGCCATTCGGTTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TCCCCA
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234Lberlandieri   AAGTTGCGCCCGAAGCCATCCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TCCCCA
236Lrigidum       AAGTTGCGCCCGAAGCCATCCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TCCCCA
241Lberlandieri   AAGTTGCGCCCGAAGCCATCCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TCCCCA
242Lrupestre      AAGTTGCGCCCGAAGCCATCCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TCCCCA
244Lhudsonioides  AAGTTGCGCCCGAAGCCATCCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TCCCCA
246LrigidumKerr   AAGTTGCGCCCGAAGCCATCCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TCCCCA
249Limbricatum    AAGTTGCGCCCGAAGCCATCCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TCCCCA
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253Lelongatum     AAGTTGCGCCCGAAGCCATCCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TCCCCA
256Lmedium        AAGTTGCGCCCGAAGCCATCCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCTCG-TCCCCA
257Lmedium        AAGTTGCGCCCGAAGCCATCCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCTCG-TCCCCA
258Lquadrifolium  AAGTTGCGCCCGAAGCCATCCGGTTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCACA-TCCCCA
266Lcarteri       AAGTTGCGCCCGAAGCCATCCGGCTGAGGGCACGTCTGCCTGGGTGTCACTCAACGTCG-CCCCA-TCCCCA
268Larenicola     AAGTTGCGCCCGAAGCCATCCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TCCCCA
269Lwestii        AAGTTGCGCCCGAAGCCATCCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCTCA-TCCCCA
270Lorizabae      AAGTTGCGCCCGAAGCCATTCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TCCCCA
291Lrigidumfilif  AAGTTGCGCCCGAAGCCATCCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TCCCCA
293Lguatemalense  AAGTTGCGCCCGAAGCCATTCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TCCCCA
294Lcatharticum   AAGTTGCGCCCGAAGCCATCCGGTTGAGGGCACGTCTGCCTGGGTGTCACGCAGCGTCG-CCCCA-TCTCCA
307Lalatum        AAGTTGCGCCCGAAGCCATCCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TCCCCA
310Llasiocarpum   AAGTTGCGCCCGAAGCCATTCGGCTAAGGGCACGTCTGCCTGGGTGTCACGCAACATCG--CCCA-TCCCCA
401Lintercursum   ---------------------GACTGAGGGCACGTCCGCTTGGGTGTCATGCAACGTCG-CCTCA-TCCCCA
A1Lrigidum        AAGTTGCGCCCGAAGCCATCCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TCCCCA
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F5Lnelsonii       AAGTTGCGCCCGAAGCCATCCGGCTGAGGGCACGCCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TTCCCA
F6Ltenellum       AAGTTGCGCCCGAAGCCATTCGGCTAAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG--CCCA-TCCCCA
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L57Lflavum        AAGTTGCGCCCGAAGCCATTCGGTTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TCCCCA
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SDLinum           AAGTTGCGCCCGAAGCCATCCGGCTGAGGGCACGTCTGCCTGGGTGTCACGCAACGTCG-CCCCA-TCCCCA


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Taxon/Node        567890123456789012345678901234567890123456789012345678901234567890123456
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005Limbricatum    CTC--GG--GGA-GGGGAGCGGATGTTGGCCTCCC-GGGG-GCTCTCAATCGAGCCTCACGGCTGGCCGAAA
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038Llongipes      ATC--GG--GGA-GGGGAGCGGATGTTGGCCTCCC-GGGG-GCTCTCAATTGAGCCTTGCGGCTGGCCGAAA
040Lcruciata      ATC--GG--GGA-GGGGAGCGGATGTTGGCCTCCC-GGGG-GCTCTCAATTGAGCCTTGCGGCTGGCCGAAA
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042Lflagellare    CTT--GG--GGA-GGGGAGCGGATGTTGGCCTCCC-GGGG-GCTCTCAATCGAGCCTCGCGGCTGGCCGAAA
047Hdrymarioides  CTC--GG--GGA-GGGGAGCGGATGTTGGCCTCCC-GGGG-GCTCTCAATTGGGCCTCGCGGCTGGCCGAAA
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124Lfloridanum    CTT--GG--GGA-GGGGAGCGGATGTTGGCCTCTC-GTTG-GCTCCTAATCGAGCTTTGCGGTTGGCCGAAA
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132Lsulcatum      CTC--GG--GGA-GGGGAGCGGATGTTGGCCTCCC-GGGG-GCTCCTAATCGGGCCTCGCGGCTGGCCGAAA
137Lvolkensii     ATC--GG--GGA-GGGGAGCGGATGTTGGCCTCCC-GGGG-GCTCTCGCTTGAGTCTTGCGGCTGGCCAAAA
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143Lorientale	CTA--TG--GGA-GGGGAGCGGATGATGGCCTCCC-GGGG-GCTCTCTCTCGAGCCTCGCGGCTGGTCGAAA
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171Rlinoides	ATC--GG--GGA-GGGGAGCGGATGGTGGTCTCCC-GGGG-GCTCTC--TTGAGTCCCGCGGTTGGCCAAAA
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246LrigidumKerr	CCC--GG--GGA-GGGGAGCGGATGTTGGCCTCCC-GGGG-GCTCTCAATCGAGCCCCGCGGCTGGCCGAAA
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L57Lflavum	CTA--TG--GGA-GGGGAGCGGATGATGGCCTCCC-GGGG-GCTCTCTCTCGAGCCTCGCGGCTGGTCGAAA
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SDLinum          CCC--GG--GGA-CGGGAGCGGATGTTGGCCTCCC-GGGG-GCTCTCAATCGAGTCCCGCGGCTGGCCGAAA


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Taxon/Node       789012345678901234567890123456789012345678901234567890123456789012345678
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005Limbricatum   A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGATTGCTGCGTG
006Lbahamense    A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGACGGCTGCGTG
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032Lhudsonioides A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGATGGCTGCGTG
034Lrupestre     A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGACGGCTGCGTG
035Lrigidum      A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGATGGCTGCGTG
036Lrupestre     A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGACGGCTGCGTG
037Lmexicanum    A-GAAAGTCGTTGGCAGAGGACGCCGTTGCGAGCTATGGTTGAAATTACACTAGAGCCTCGTTGGCTGCGTG
038Llongipes     A-GAAATTCGTCGGCAGAGGATGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTAGCTGCGTG
040Lcruciata     A-GAAATTCGTCGGCAGAGGATGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTAGCTGCGTG
041Laristatum    A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGATGGCTGCGTG
042Lflagellare   A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGACGGCTGCGTG
047Hdrymarioides A-GAAAGTCGTCGGCAGTGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
048Hmicranthum   A-GAAAGTCGTCGGCAGTGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
055Laethiopicum  A-GAAAGTCATCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
059Lcomptonii    A-GAAAGTTGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAACTACACTAGAGTCTCGTTGGCTGCGTG
061Lesterhuysena A-GAAAGTCATCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
062Lheterostylum A-GAAAGTCATCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGCCTCGTTGGCTGCGTG
066Ltenue        A-TRAAGTCGTCGGCTGAGGACGCCGTTGCGAGCTGTGGTTGAAATTAMACTAGAGTCTCATCGCATGCGTG
067Lthunbergii   A-GCAAGTCATCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
072Ltrigynum     A-TGAAGTCGTCGGCTGAGGATGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCATCGCATGCGTG
075Lstriatum     T-GAAATTCGTCGGCATAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCCCATT-GCTGCGTG
083Sdigynum      A-GAAAGTCGTCGGCAGGGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTCAGCTGCGTG
089Llittorale    A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCATTGGCTGCGTG
091Loligophyllum A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
123Lkingii       A-GAAATTCATCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAACTACACTAGAGTCTCGTCAGCTGCGTG
124Lfloridanum   T-GAAATTCGTCGGCATAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCATTGGCTACGTG
130Lvirginianum  T-GAAATTCGTCGGCATAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCATTGGCTGCGTG
132Lsulcatum     A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGATAGCTGCGTG
137Lvolkensii    A-GAAAGTCGTCGGCTGAGGATGTCGTTGCGAGCTGTGGTTGAAATTACACTAGAGACTCGTTGGCTACGTG
139Lholstii      A-GAAAGTCGTCGGCTGAGGATGTCGTTGCGAGCTGTGGTTGAAATTACACTAGAGACTCGTTGGCTACGTG
143Lorientale    A-GAAAGTCGTCGGCCTAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGTTGGCTGCGTG
149Lflavum       A-GAAAGTCGTCGGCCTAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
151Lcatharticum  AGGAAAGTCGTCGGCTGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
156Ltenuifolium  A-GAAAGTCGTCGGCTGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
157Ltauricum     A-GAAAGTCGTCGGCCWAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
163Lelegans      A-GAAAGTCGTCGGCCTAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
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164Larboreum     A-GAAAGTCGTCGGCCTAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
171Rlinoides     A-GAAAGTCGTCGGCAGAGGATGCCGTAGCGAGCTGTGGTTGAAATTTCACT--AGTCTCATTTGCTACGTG
183Lpuberulum    A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGATGGCTGCGTG
184Lvernale      A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGATGGCTGCGTG
186Llundellii    A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGATGGCTGCGTG
187Lcremnophyllu A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
193Lbrevifolium  A-AGAATTCGTCGGCAGAGGATGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGTTGGCTGCGTG
194Lprostratum   A-AAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
195Lchamissonis  A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
196Lerigeroides  A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
200Lcarneum      A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGG-------
201Lpringlei     A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGATGGCTGCGTG
049Cselaginoides A-GATATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
206Cselaginoides A-GATATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
210Lmacraei      A--AAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
210Lmacraei      A--AAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACA----------------------
215Lchamissonis  A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
219Lscoparium    A-AGAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGTTAGCTGCGTG
220Cselaginoides A-GATATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
221Lburkartii    A-GATTTTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
223Lkingii       A-GAAATTCATCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAACTACACTAGAGTCTCGTCAGCTGCGTG
228Lneomexicanum A-GAAATTCATCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAATCTACGCTAAAGTCTCGTCGGCTGCGTG
231Lcompactum    A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGATGGCTGCGTG
232Laustrale     A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGATGGCTGCGTG
233Laristatum    A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGATGGCTGCGTG
234Lberlandieri  A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGATGGCTGCGTG
236Lrigidum      A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGATGGCTGCGTG
241Lberlandieri  A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGATGGCTGCGTG
242Lrupestre     A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGACGGCTGCGTG
244Lhudsonioides A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGATGGCTGCGTG
246LrigidumKerr  A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGATGGCTGCGTG
249Limbricatum   A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGATTGCTGCGTG
250Lhudsonioides A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAGTTACACTGGAGTCTCGATGGCTGCGTG
251Lrigidum      A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGATGGCTGCGTG
253Lelongatum    A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCCCGATGGCTGCGTG
256Lmedium       T-GAAATTCGTCGGCATAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCATTGGCTGCGTG
257Lmedium       T-GAAATTCGTCGGCATAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCATTGGCTGCGTG
258Lquadrifolium A-GAAAGTCATCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTCGGCTGCGTG
266Lcarteri      A-GGAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGATGGCTGCGTG
268Larenicola    A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGACGGCTGCGTG
269Lwestii       T-GAAATTCGTTGGCATAGGATGCCGTTGCGAGCTGTGGTTGAAATTAAACTGGAGTCTCATTGGCTGCGTG
270Lorizabae     A-GAAAGTCGTTGGCAGAGGACGCCGTTGCGAGCTATGGTTGAATTTACACTAGAGCGTCGTTGGCTGCGTG
291Lrigidumfilif A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGATGGCTGCGTG
293Lguatemalense A-GAAAGTCGTTGGCAGAGGACGCCGTTGCGAGCTATGGTTGAATTTACACTAGAGCCTCGTTGGCTGCGTG
294Lcatharticum  AGGAAAGTCGTCGGCTGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
307Lalatum       A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGATGGCTGCGTG
310Llasiocarpum  A-GAAATTCATCGGTAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
401Lintercursum  T-TAAATTCGTCGGCATAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCACATTGGCTGCGTG
A1Lrigidum       A-GATATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGATGGCTGCGTG
F1Lbahamensecora A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGACGGCTGCGTG
F2Lcruciata      A-CAATTTCGTCGTCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCAGCGTG
F5Lnelsonii      A-GAATTTCGTCGTCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
F6Ltenellum      A-GAAATTCATCGGTAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
F7Lscabrellum    A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGATGGCTGCGTG
F8Ltenellum      A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTATGGTTGAAACTACACTAGAGTCTCGTTGGCTGCGTG
L17Ltenuifolium  A-GAAAGTCGTCGGCTGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
L29Lmaritimum    A-GAAAGTCGTCGGCTGAGSACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTCGCATACGTG
L43 Lcatharticum AGGAAAGTCGTCGGCTGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
L57Lflavum       A-GAAAGTCGTCGGCCTAGAACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
LinumSpYeso      A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGATGGCTGCGTG
PM1983Sdigynum   A-GAAAGTCGTCGGCAGGGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTCAGCTGCGTG
SA10Lesterhuysen A-GAAAGTCATCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
SA11LinumAgulhas A-GAAAGTCATCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
SA12Laethiopicum A-GAAAGTCATCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
SA13LinumspWindb A-GAAAGTCATCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
SA14Lvillosum    A-GAAAGTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
SA17Lthesiodes   A-GAAAGTCATCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
SA19Lcompton     A-GAAAGTTGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAACTACACTAGAGTCTCGTTGGCTGCGTG
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SA1Lafricanum      A-GAAAGTCGTCGGCAGAGGACGCCGTTGCGAGCTATGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
SA3Lacuticarpum    A-GAAAGTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
SA4Lgracile        A-GAAAGTCATCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
SA5Lgracile        A-GAAAGTCATCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
SA6Lgracile        A-GAAAGTCACCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTAGCTGCGTG
SA7LinumDeHoop     A-GAAAGTCATAGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
SA8adustum         A-GAAAGTCATCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
SA8Ladustum        A-GAAAGTCATCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
SA9Lesterhuysena   A-GAAAGTCATCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTAGAGTCTCGTTGGCTGCGTG
SDLinum            A-GAAATTCGTCGGCAGAGGACGCCGTTGCGAGCTGTGGTTGAAATTACACTGGAGTCTCGATGGCTGCGTG


                   666666666666666666666666666666666666666666666666666777777777777777777777
                   455555555556666666666777777777788888888889999999999000000000011111111112
Taxon/Node         901234567890123456789012345678901234567890123456789012345678901234567890
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001Lmedium         CGATCCTTTGTCGATGTGACCAA-GATGGACCTCGAGGGAC-AA-AT--------TGAGCCTTCAAAGATGC
005Limbricatum     CGATCCTCCGTCGATGGTACTCC-TAAGGACCTCGAGGGAC--A-AT--------TGAGCCTTCAAAAATGC
006Lbahamense      CGATCCTCCGTCGACGGCACCAC-TAAGGACCTCGAGGGAC--A-GT--------TGAACCTTCAAAAATGC
007Lbahamense      CGATCCTCCGTCGACGGCACCAC-TAAGGACCTCGAGGGAC--A-GT--------TGAACCTTCAAAAATGC
009Lschiedeanum    CGATCCTTCGTCGATGGCCTCAT-GATGGACCTCGAGGGAA----AA--------TTGACCTTCAAAAATGC
011Lsuffruticosu   CGCTCCTCGGCCGAGGACACCAC-GATGGACCCCGAGGGAC--GAAA--------TGGACCTTCGAAATAGC
012Lstrictumssps   CGCTCCTCGGTCGAGGACACCAC-GATGGACCCCGAGGGAC--A-TA--------TGGGCCTTCAAAATAGC
022Hclevelandii    CGCTCCTCTGTCGATGGCAACAT-GATAGACCTTGAGGGAC--A-AT--------TGAACCTTCTAAAATGC
025Hdisjunctum     CGCTCCTCTGTCGATGGCAACMT-GATGGACCTTGAGGGAC--A-AT--------TGAACCTTCTAAAATGC
027Lberlandierib   CGATCCTCCGTCGATGGTACCCC-AAAGGACCACGAGGGAC--A-AC--------TGAACCTTCAAAAATGC
028Lberlandierif   CGATCCTCCGTCGATGGTACCCC-AAAGGACCACGAGGGAC--A-AC--------TGAACCTTCAAAAATGC
032Lhudsonioides   CGATCCTCCGTCGACGGTAACCC-TGAGGACCTCGAGGGAC--A-AG--------CGAGCCTTCAAAAATGC
034Lrupestre       CGATCCTCCGTCGACGGCACCAC-TAAGGACCTCGAGGGAC--A-GT--------TGAACCTTCAAAAATGC
035Lrigidum        CGATCCTCCGTCGATGGTACCCC-MAAGGACCACGAGGGAC--A-AC--------TGAACCTTCMAAAATGC
036Lrupestre       CGATCCTCCGTCGACGGCACCAC-TAAGGACCTCGAGGGAC--A-GT--------TGAACCTTCAAAAATGC
037Lmexicanum      CGATCCTCCGTCGAGGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTCAAAAATGC
038Llongipes       CGATCCTCCGTCGAGGGCACCAT-GATGGACCTAGAGGGAC--T-GT--------TGATCCTTCAAAAATGC
040Lcruciata       CGATCCTCCGTCGAGGGCACCAT-GATGGAC-----------------------------------------
041Laristatum      CGATCCTCCGTCGATGGTACCCC-CAAGGACCACGAGGGAC--A-AC--------CGAACCTTCAAAAATGC
042Lflagellare     CGATCCTCCGTCGACGGCACCAC-TAAGGACCTCGAGGGAC--A-GT--------TGAACCTTCAAAAATGC
047Hdrymarioides   CGCTCCTCCGTCGATGGCAACAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTCTAAAATGC
048Hmicranthum     CGCTCCTCCGTCGATGGCAACAT-GATGGACCTTGAGGGAC--A-AT--------TGAACCTTCTAAAATGC
055Laethiopicum    CGCTCCTCCGTCGAGGGCACCAC-GATGGACCTTGAGGGAC--A-AT--------TGAACCTTAAAAAATGC
059Lcomptonii      CGCTCCTCCGTCGAGGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTACAAAATGC
061Lesterhuysena   CGCTCCTCCGTCGAGGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTTACAAATGC
062Lheterostylum   CGCTCCTCCGTCGAGGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTAAAAAATGC
066Ltenue          TGCTCCTTGGTCGATGACACCAC-AATGGACCCTGAGGGACTAA-----------TGAACCTTC-AAAATGC
067Lthunbergii     CGTTCCTTCGTCGAGGGCATCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTAAAAGATGC
072Ltrigynum       TGCTCCTTGGTCGATGACACCAC-AATGGACCCTGAGGGACAAA-----------TGGACCTTC--AAATGC
075Lstriatum       CGATCCTTTGACGATGTGACCAC-GATGGACCTCGAGGGAC--AAAT--------TGAGCCTTCAAAAATGC
083Sdigynum        CGCTCCCTTGTCGAGGACGCCAC-GACGGACCTCGAGGGAC--A-AC--------CGAGCCTTCAAAAATGC
089Llittorale      CGATCCTCCGTTGGCGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTCAAAAATGC
091Loligophyllum   CGATCCTCCGTCGGCGGCACCAC-GATGGACCTTGAGGGAC--A-AT--------TGAACCTTCAAAAATGC
123Lkingii         CGATCCTCCGTCGATGGCACCAC-TATGGACCTTACGGGAC--A-AC--------CGATCCTTAAAAAA-GC
124Lfloridanum     CGATCCTTTGACGATGCGACCAC-GATGGACCTCGAGGGAC-AA-AT--------TGAGCCTTCAAAAATGC
130Lvirginianum    CGATCCTTTGTCGATGTGACCAA-GATGGACCTCGAGGGAC-AA-AT--------TGAGCCTTCAAAGATGC
132Lsulcatum       TGATCCTCCGTCGATGGCACCAC-TAAGGACCTCGAGGGAC--A-AT--------TGAACCTTCACAAATGC
137Lvolkensii      CGCTCCTAGTTCGGGGACACCAC-AATGGATCCTAAGGGAC--A-TA--------TGGACCTTCAAATA-GC
139Lholstii        CGCTCCTAGTTCGGGGACACCAC-AATGGATCCTAAGGGAC--A-TA--------TGGACCTTCAAATA-GC
143Lorientale      CGCTCTTGGGTCGAGGACACCAT-GATGGACCTCGAGGGAC--G-AA--------TGGACCTTCAAAAA-GC
149Lflavum         CGCTCTTGGGTCGAGGACACCAT-GATGGACCCCGAGGGAC--G-TA--------TGGACCTTCAAAAA-GC
151Lcatharticum    CGCTCCTTTGTCGATGACACCAT-GATGGACCTCGAGGGACCAATAA--------CGGACCTTCAAAAATGC
156Ltenuifolium    CGCTCCTCGGCCGAGGACACCAC-GATGGACCCCGAGGGAC--AAAA--------TGGACCTTCGAAATAGC
157Ltauricum       CGCTCTTGGGTCGAGGACACCAT-GATGGACCTCGAGGGAC--G-AA--------TGGACCTTCAAAAA-GC
163Lelegans        TGCTCTTGGGTCGAGGACACCAT-GATGGACCCCGAGGGAC--G-AA--------TGGACCTTCAAAAT-GC
164Larboreum       CGCTCTTGGGTCGAGGACACCAT-GATGGACCCCGAGGGAG--G-AA--------TGGACCTTCAAAAA-GC
171Rlinoides       TGATCCTTCGTCGAGGGCTCCAC-GATGGACCTTGTGGGAC--ATGCAACTGGCATGGACCTTCTAAAA-GC
183Lpuberulum      CGATCCTCCGTCGATGGTACCCC--AAGGACCACGAGGGAC--A-AC--------TGAACCTTCAAAAATGC
184Lvernale        CGATCCTCCGTCGATGGTACCCC-CAAGGACCACGAGGGAC--A-GC--------TGAACCTTCAAAAATGC
186Llundellii      CGATCCTCCGCCGATGGTACCCC-AAAGGACCACGAGGGAC--A-AC--------CGAACCTTCAAAAATGC
187Lcremnophyllu   CGATCCTCCGTCGGCGGCACCAT-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTCAAAAATGC
193Lbrevifolium    CGATCCTCCGTCGATGGGACAAC-TATGGACCTCGAGGGAC--A-AT--------TGAACCTTCAAAAATGC
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194Lprostratum   CGACCTCCTTCCGGCGGCACCAC-GATGGACCTCGAGGGAC--A-TT--------TGAACCTTCAAAAATGC
195Lchamissonis  CGATCCTCCGTCGGGGGCACCAC-GATGGACC----------------------------------------
196Lerigeroides  CGATCCTCCGTAGGCGGCAACAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTAAAAAATGC
200Lcarneum      ------------------------------------------------------------------------
201Lpringlei     TGATCCTCCGTCGGTGGCACCAC-TAAGGACCTCGAGGGAC--A-AT--------TGAACCTTCAAAAATGC
049Cselaginoides CGATCCTCCGTCGATGGCACCAC-GATGGACCTTGAGGGAC--A-GT--------TGAACCTTCAAAAATGC
206Cselaginoides CGATCCTCCGTCGATGGCACCAC-GATGGACCTTGAGGGAC--A-GT--------TGAACCTTCGAAAATGC
210Lmacraei      CGATCCTTTGTCGGCGGCACCAT-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTCAAAAATGC
210Lmacraei      ------------------------------------------------------------------------
215Lchamissonis  CGATCCTCCGTCGGGGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTCAAAAATGC
219Lscoparium    CGATCCTCCGTCGATGGGACAAC-TATGGACCTCGAGGGAC--A-AT--------TGAACCTTCAAAAATGC
220Cselaginoides CGATCCTCCGTCGATGGCACCAC-GATGGACCTTGAGGGAC--A-GT--------TGAACCTTCAAAAATGC
221Lburkartii    CGATCCTCCGTCGATGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTCAAAAATGC
223Lkingii       CGATCCTCCGTCGATGGCACCAC-TATGGACCTTACGGGAC--A-AC--------CGATCCTTAAAAAA-GC
228Lneomexicanum CGATCCTCCGCCGATGGCACCAT-TATGGACCTTGCGGGAC--A-AT--------TGATCCTT-AAAAATGC
231Lcompactum    CGATCCTCCGTCGATGGTACCCC-AAAGGACCACGAGGGAC--A-AC--------TGAACCTTCAAAAATGC
232Laustrale     CGATCCTCCGTCGATGTTACCCC-CAAGGACCACGAGGGAC--A-AC--------TGAACCTTC-CAAATGC
233Laristatum    CGATCCTCCGTCGATGGTACCCC-AAAGGACCACGAGGGAC--A-AC--------TGAACCTTCAAAAATGC
234Lberlandieri  CGATCCTCCGTCGATGGTACCCC-CAAGGACCACGAGGGAC--A-AC--------TGAACCTTCCAAAATGC
236Lrigidum      CGATCCTCCGTCGATGGTACCCC-CAAGGACCACGAGGGAC--A-AC--------TGAACCTTCCAAAATGC
241Lberlandieri  CGATCCTCCGTCGATGGTACCCC-CAAGGACCACGAGGGAC--A-AC--------TGAACCTTCCAAAATGC
242Lrupestre     CGATCCTCCGTCGACGGCACCAC-TAAGGACCTCGAGGGAC--A-GT--------TGAACCTTCAAAAATGC
244Lhudsonioides CGATCCTCCGTCGACGGTACCCC-TGAGGACCTCGAGGGAC--A-AG--------TGAGCCTTCAAAAATGC
246LrigidumKerr  CGATCCTCCGCCGATGGTACCCC-AAAGGACCACGAGGGAC--A-AC--------TGAACCTTCAAAAATGC
249Limbricatum   CGATCCTCCGTCGATGGTACTCC-TAAGGACCTCGAGGGAC--A-AT--------TGAGCCTTCAAAAATGC
250Lhudsonioides CGATCCTCCGTCGACGGTACCCC-TGAGGACCTCGAGGGAC--A-AG--------TGAGCCTTCAAAAATGC
251Lrigidum      CGATCCTCCGTCGATGGTACCCC-AAAGGACCACGAGGGAC--A-AC--------TGAACCTTCAAAAATGC
253Lelongatum    CGATCCTCCGTCGATGGTACCCC-AAAGGACCACGAGGGAC--A-AC--------TGAACCTTCAAAAATGC
256Lmedium       CGATCCTTTGTCGATGTGACCAA-GATGGACCTCGAGGGAC--AAAT--------TGAGCCTTCAAAGATGC
257Lmedium       CGATCCTTTGTCGATGTGACCAA-GATGGACCTCGAGGGAC-AA-AT--------TGAGCCTTCAAAGATGC
258Lquadrifolium CGCTCCTCCGTCGAGGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTCAAAAAATGC
266Lcarteri      CGATCCTCCGTCGATGGTACCCA-CAAGGACCACGAGGGAC--A-AC--------TGAACCTTCAAAAATGC
268Larenicola    CGATCCTCCGTCGACGGCACCAC-TAAGGACCTCGAGGGAC--A-GT--------TGAACCTTCAAAAATGC
269Lwestii       CGATCCTTTGCCGATGTCGCCAC-GATGGACCTCGAGGGAC--A-AT--------TGAGCCTTCAAAAATGC
270Lorizabae     CGATCCTCCGTCGAGGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTCAAAAATGC
291Lrigidumfilif CGATCCTCCGTCGATGGTACCCC-AAAGGACCACGAGGGAC--A-AC--------TGAACCTTCAAAAATGC
293Lguatemalense CGATCCTCCGTCGAGGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTCAAAAATGC
294Lcatharticum  CGCTCCTTTGTCGATGACACCAT-GATGGACCTCGAGGGACCAATAA--------CGGACCTTCAAAAATGC
307Lalatum       CGATCCTCCGTCGATGGTACCCC-AAAGGACCACGAGGGAC--A-GC--------TGAACCTTCAAAAATGC
310Llasiocarpum  CGATCCTTCGTTGATGGAACCAT-GATGGACCTC--------------------------------------
401Lintercursum  CGATCCTTTGTCGATGTGACCAA-GATGGACCTCGAGGGAC-AA-AT--------TGAGCCTTCAAAAGTGC
A1Lrigidum      CGATCCTCCGTCGATGGTACCCC-AAAGGACCACGAGGGAC--A-AC--------TGAACCTTCAAAAATGC
F1Lbahamensecora CGATCCTCCGTCGACGGCACCAC-TAAGGACCTCGAGGGAC--A-GT--------TGAACCTTCAAAAATGC
F2Lcruciata     CGATCCTTTGTCGATGGCCCCAT-GATGGACCTCGAGGGAA----AA--------TTGACCTTCAAAAATGC
F5Lnelsonii     CGATCCTTCGTTGATGGCCTCAT-GATGGACCTCGAGGGAA----AA--------TTGACCTTCAAAAATGC
F6Ltenellum     CGATCCTTCGTTGATGGAACCAT-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTCAAAAATGC
F7Lscabrellum   CGATCCTCCGTCGACGGCACCACTTAAGGACCTCGAGGGAC--A-GT--------TGAACCT----------
F8Ltenellum     CGATCCTTTGTTGATGGAACCAT-GATGGACCTCGAGGGAA--A-AT--------TTATCCTTCAAAAATGC
L17Ltenuifolium CGCTCCTCGGCCGAGGACACCAC-GATGGACCCCGAGGGACATA-AA--------TGGACCTTCGAAATAGC
L29Lmaritimum    TGCTCCTTGGTTGATGTCTACAC-AATGGACCGTGAGGGACTAA-----------TGTACCTTC-AAAATGC
L43 Lcatharticum CGCTCCTTTGTCGATGACACCAT-GATGGACCTCGAGGGACCAATAA--------CGGACCTTCAAAAATGC
L57Lflavum      CGCTCTTGGGTCGAGGACRCCAT-GATGGACCCCGAGGGAC--G-AA--------TGGACCTTCAAAAA-GC
LinumSpYeso     CGATCCTCCGTCGATGGTACCCC-CAAGGACCACGAGGGAC--A-AC--------TGAACCTTCAAAAATGC
PM1983Sdigynum  CGCTCCCTTGTCGAGGACGCCAC-GACGGACCTCGAGGGAC--A-AC--------CGAGCCTTCAAAAATGC
SA10Lesterhuysen CGCTCCTCCGTCGAGGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTTACAAATGC
SA11LinumAgulhas CGCTCCTCCGTCGAGGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTAAAAAATGC
SA12Laethiopicum CGCTCCTCCGTCGAGGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTAAAAAATGC
SA13LinumspWindb CGCTCCTCCGTCGAGGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTAAAAAATGC
SA14Lvillosum    CGCTCCTCCGTCGAGGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTAAAAAATGC
SA17Lthesiodes   CGCTCCTCCGTCGAGGGCACCAT-GATGGACCTCGAGGGAC--A-AT--------TGAACCTC--AAAATGC
SA19Lcompton     CGCTCCTCCGTCGAGGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTACAAAATGC
SA1Lafricanum    CGCTCCTCCGTCGAGGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGGACCTTAAAAAATGC
SA3Lacuticarpum  CGCTCCTTCGTCGAGGGCACCAC-GATGGACCTCAAGGGAC--A-AT--------TGAACCTTAAAAAATGC
SA4Lgracile      CGCTCCTCCGTCGAGGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTAAAAAATGC
SA5Lgracile      CGCTCCTCCGTCGAGGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTAAAAAATGC
SA6Lgracile      CGCTCCTCCGTCGAGGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTAAAAAATGC
SA7LinumDeHoop   CGCTCCTCCGTCGAGGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTAAAAAATGC
SA8adustum      CGTTCCTCCGTCGAGGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTAAAAAATGC
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SA8Ladustum      CGCTCCTCCGTCGAGGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTAAAAAATGC
SA9Lesterhuysena CGCTCCTCCGTCGAGGGCACCAC-GATGGACCTCGAGGGAC--A-AT--------TGAACCTTTACAAATGC
SDLinum          CGATCCTCCGTCGATGGTACCCC-AAAGGACCACGAGGGAC--A-AC--------TGAACCTTCAAAAATGC


                  7777777777777777777777777777777777777777777777777777777777777777777
                  2222222222333333333344444444445555555555666666666677777777
Taxon/Node        1234567890123456789012345678901234567890123456789012345678901234567
---------------------------------------------------------------------------
001Lmedium        GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
005Limbricatum    GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
006Lbahamense     GA-CCCCAGGTCAG-------------------------------------------
007Lbahamense     GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCA-----------------
009Lschiedeanum   GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATA---------
011Lsuffruticosu  GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATAT--------------
012Lstrictumssps  ---------------------------------------------------------
022Hclevelandii   GA-CCCCAGGTCAGGCGG---------------------------------------
025Hdisjunctum    GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTA---------------------
027Lberlandierib  GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
028Lberlandierif  GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGC------------------
032Lhudsonioides  GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
034Lrupestre      GA-CCCCAGTC----------------------------------------------
035Lrigidum       GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAG-------------------
036Lrupestre      ---------------------------------------------------------
037Lmexicanum     GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
038Llongipes      GA-CCCC--------------------------------------------------
040Lcruciata      ---------------------------------------------------------
041Laristatum     GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
042Lflagellare    GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATA---------
047Hdrymarioides  GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
048Hmicranthum    GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAAT----------
055Laethiopicum   GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
059Lcomptonii     GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCA-----------------
061Lesterhuysena  ---------------------------------------------------------
062Lheterostylum  GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
066Ltenue         GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATAT--------------
067Lthunbergii    GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
072Ltrigynum      GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATAT--------------
075Lstriatum      GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
083Sdigynum       GACCCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCA-----------------
089Llittorale     GA-CCCCA-------------------------------------------------
091Loligophyllum  ---------------------------------------------------------
123Lkingii        ---------------------------------------------------------
124Lfloridanum    GA-------------------------------------------------------
130Lvirginianum   GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
132Lsulcatum      GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
137Lvolkensii     GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCA------------
139Lholstii       GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATA---------------
143Lorientale     GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAA-----------
149Lflavum        GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATA---------
151Lcatharticum   GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
156Ltenuifolium   GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATA---------------
157Ltauricum      GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCAT----------------
163Lelegans       GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCA-----------------
164Larboreum      GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATA---------------
171Rlinoides      GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAA--------
183Lpuberulum     GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
184Lvernale       GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATA---------------
186Llundellii     GA-CCCCAGGTCAGGCGGGAACACCCGCTGAG-------------------------
187Lcremnophyllu  GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
193Lbrevifolium   G--------------------------------------------------------
194Lprostratum    ---------------------------------------------------------
195Lchamissonis   ---------------------------------------------------------
196Lerigeroides   GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
200Lcarneum       ---------------------------------------------------------
201Lpringlei      GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAG-------------------
049Cselaginoides  ---------------------------------------------------------
206Cselaginoides  GA-CCCCAGGTCAGGCGGGAGCACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
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210Lmacraei       GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
210Lmacraei       ---------------------------------------------------------
215Lchamissonis   GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCA------------
219Lscoparium     GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATA---------
220Cselaginoides  GA-CCCCAGGTCAGGCGGGAGCACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
221Lburkartii     GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGG-
223Lkingii        GA-CCCCAGGTCAGGCG----------------------------------------
228Lneomexicanum  GA-CCCCAGGTCAGGCGG---------------------------------------
231Lcompactum     GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
232Laustrale      GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
233Laristatum     GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
234Lberlandieri   GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAAT----------
236Lrigidum       GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
241Lberlandieri   GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
242Lrupestre      GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATA---------------
244Lhudsonioides  GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
246LrigidumKerr   GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGC-------------------
249Limbricatum    GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
250Lhudsonioides  GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
251Lrigidum       GA-CCCCAGGT----------------------------------------------
253Lelongatum     GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
256Lmedium        GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
257Lmedium        GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAA--------
258Lquadrifolium  GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAA--------
266Lcarteri       GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
268Larenicola     GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
269Lwestii        GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
270Lorizabae      GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
291Lrigidumfilif  GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCA-----------------
293Lguatemalense  GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
294Lcatharticum   GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTA---------------------
307Lalatum        GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
310Llasiocarpum   ---------------------------------------------------------
401Lintercursum   GA-CCCCAGGTCAGGCGGGAACACCCACTGAGTTTAAGCATATCAATAAGCGGAGGA
A1Lrigidum        GG-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
F1Lbahamensecora  GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAA--------
F2Lcruciata       GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
F5Lnelsonii       GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
F6Ltenellum       GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAG-------
F7Lscabrellum     ---------------------------------------------------------
F8Ltenellum       GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAA--------
L17Ltenuifolium   ---------------------------------------------------------
L29Lmaritimum     ---------------------------------------------------------
L43 Lcatharticum  ---------------------------------------------------------
L57Lflavum        ---------------------------------------------------------
LinumSpYeso       GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
PM1983Sdigynum    GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
SA10Lesterhuysen  GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAA--------
SA11LinumAgulhas  GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
SA12Laethiopicum  GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
SA13LinumspWindb  GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATAT--------------
SA14Lvillosum     GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
SA17Lthesiodes    GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
SA19Lcompton      GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
SA1Lafricanum     GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
SA3Lacuticarpum   GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
SA4Lgracile       GA-CCCCAGGTCAGGCG----------------------------------------
SA5Lgracile       GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
SA6Lgracile       GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
SA7LinumDeHoop    GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
SA8adustum        GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
SA8Ladustum       GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
SA9Lesterhuysena  GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGG-
SDLinum           GA-CCCCAGGTCAGGCGGGAACACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA
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Vita

Joshua Robert McDill was born in Vallejo, California, but was raised in the town of Napa. Following an unremarkable primary education, he moved to San Francisco, where, as an unremarkable undergraduate at San Francisco State University, he was introduced to the the study of botany by several charismatic professors who made it all seem fun. Following a botany internship at the California Academy of Sciences, he entered graduate school at S.F.S.U. under the supervision of Dr. Robert Patterson, and received a M.A. in Ecology and Systematic Biology in 2001 with a thesis entitled "Evolutionary Trends in the Leaf and Stem Anatomy of *Linanthus* and Related Genera (Polemoniaceae)." While collecting *Linanthus* throughout California, he became familiar with another genus, *Hesperolinon*, which initiated a fateful interest in the Linaceae. At S.F.S.U., he served as a teaching assistant for courses including The World of Plants, Electron Microscopy, and The Sierra Nevada Flora. He entered the Graduate School of the University of Texas at Austin in the Fall of 2001, in the Plant Biology Graduate Program. While at U.T., he was a teaching assistant for courses including Plant Anatomy, Survey of the Plant Kingdom, and Native Plants, and served as a graduate research assistant for Dr. Beryl Simpson. He received a University Pre-emptive Fellowship for the 2001-2002 academic year, a National Science Foundation Dissertation Improvement Grant in 2005, and a University Continuing Fellowship for the 2006-2007 academic year. He resides in Austin, TX, with his husband, Marc Caddell.

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